

AM-FM STEREO MODELS WITH 8 TRACK TAPE PLAYER
E1SF-19A168 -AA
**FAIRMONT, ZEPHYR, MUSTANG, CAPRI, FORD, MERCURY
GRANADA, COUGAR, XR7, T-BIRD LINCOLN, MARK V
BRONCO, LIGHT TRUCK, ECONOLINE MED. TRUCK**
EOHF-19A168 -AA
W TRUCK
PARTIAL FM ALIGNMENT PROCEDURE

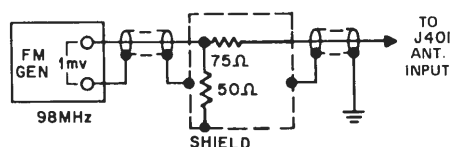
NOTE: This procedure is to be used only when a component on the FM tuner panel has been replaced and it is restricted to the alignment of the replaced component only.

EQUIPMENT

1. Power Supply - Hewlett Packard 6285A or equivalent
2. VTVM - Hewlett Packard 400H or equivalent
3. FM Signal Generator - Boonton 202H or equivalent
4. Oscilloscope - Tektronix 504 or equivalent

PRELIMINARY INFORMATION

1. Before proceeding with the FM alignment, read the Service Notes and follow preliminary information steps 1 through 3 under VARACTOR POWER SUPPLY ALIGNMENT to determine whether the varactor voltages are within acceptable limits.
Use a VTVM with an input impedance of 1 megohm or greater for voltage measurements.
2. Connect RF signal generator through dummy antenna to antenna input jack J801. (Refer to Diagram A for dummy antenna configuration.) Use 400 Hz modulation, ± 25 KHz deviation signal at frequency indicated and keep generator output at 1 millivolt.
3. Measure FM Audio Output at junction of C126, R121, R122.


DIAGRAM A FM DUMMY ANTENNA
PARTIAL FM ALIGNMENT PROCEDURE FOLLOWING PARTS REPLACEMENT

When replacing a component on the FM tuner panel, alignment should be performed only on the component replaced. The procedure in each case is shown in simplified chart form below.

PART REPLACED	GENERATOR SETTING	ADJUSTMENT FOR MAX. OUTPUT
T103	88MHz	T103
VC103	108MHz	VC103
VC101, VC102	108MHz	Only the capacitor or capacitors replaced
T101, T102	88MHz	Only the coil or transformer replaced
VRAC103	108MHz	VC103
	88MHz	T103
VRAC101 VRAC102	108MHz	The associated capacitor (VC101 or VC102)
	92MHz	The associated coil or transformer (T101 or T102)
T105 FM Detector Coil	Align FM detector as follows: a. Adjust generator frequency for max. output at pin 1 of IC101. b. Set generator to 75 KHz deviation, 400Hz modulated signal at 1 millivolt output. c. Adjust FM detector coil T105 for max. output on scope or meter. d. Adjust generator frequency for min. distortion in output indication. e. At null point, readjust T105 for max. output on scope or meter	

VARACTOR POWER SUPPLY ALIGNMENT PROCEDURE

SERVICE NOTES

Follow preliminary information steps 1 through 3 below to determine whether the varactor power supply requires complete alignment.

The external test point and adjustment locations in Figure 5 (Troubleshooting Procedures) can be used during this procedure.

The FM voltage tuning chart in Diagram B can be used as a visual aid to determine whether complete alignment is required.

PRELIMINARY INFORMATION

1. Disconnect J301 from FM panel and connect +14 VDC output from power supply to A+ cable lead, and negative lead of power supply to radio chassis.
2. Depress FM mode push button for FM operation.
3. To determine whether varactor power supply alignment is necessary, use VTVM to measure VRAC tuning voltage at P101 (11) under conditions listed below. (If any voltage measured is not within limits specified, proceed with COMPLETE VARACTOR ALIGNMENT procedure.)
 - a. Dial pointer set to extreme high end (at stop) - output on VTVM should be 6.6 VDC or greater.
 - b. Dial pointer set to 94 MHz - output on VTVM should be 1.4 to 1.6 VDC.
 - c. Dial pointer set to extreme low end (at stop) - output on VTVM should be 0.72 VDC or less.

STEP	ALIGNMENT PROCEDURES
1	Disassemble radio as required (see disassembly instructions).
2	Set pointer to 98 MHz. Adjust core of L304 for 2.30 VDC on VTVM at J301 (11). (To do this - remove top cover.)
3	Check voltages at extreme ends of tuner travel. These voltages should be 0.72 VDC, or less, at the low end, and 6.6 VDC, or greater, at the high end.
4	Adjustment of the core can be made at 98 MHz to meet this minimum tuning voltage range or to center the tuning voltage range.

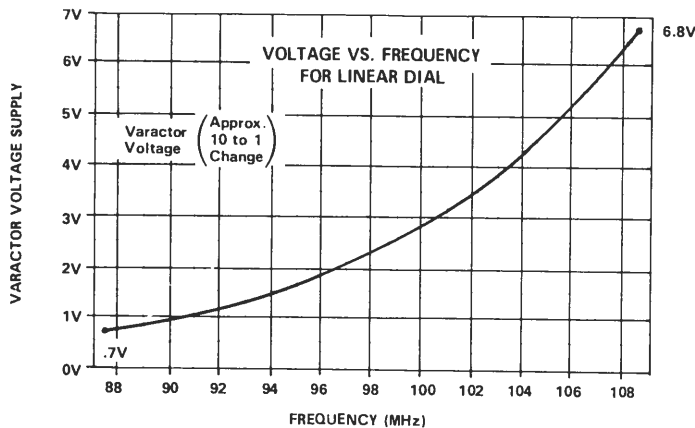


DIAGRAM B. FM VOLTAGE TUNING CHART

AM ALIGNMENT

CAUTION NOTE:

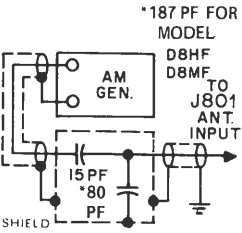
PERFORM THE FOLLOWING ALIGNMENT PROCEDURE ONLY IF TUNING COIL OR CORES HAVE BEEN REPLACED. FACTORY INSTALLED TUNER ASSEMBLIES ARE FACTORY ALIGNED.

PRELIMINARY INFORMATION

1. Disassemble radio as required. (See Disassembly Instructions.)
2. Connect +14 VDC output from power supply to A+ cable lead, and negative lead of power supply to chassis ground.
3. Connect VTVM or scope to R222 for indication of AM audio output (junction of C220, C221 and R222) (See step 5)
4. Connect AM signal generator as directed in AM ALIGNMENT procedure. (See diagram C for the dummy antenna circuit and for value of shunt capacitor to be used to obtain desired antenna pre-trim.)
5. Depress AM mode push button for AM operation.

NOTE: Antenna trimmer VC104 is preset using a dummy antenna of total series and shunt capacitance as specified in Diagram C. No further adjustment in the vehicle is recommended.

AM ALIGNMENT PROCEDURE

STEP	SPECIAL INSTRUCTIONS	SIGNAL GENERATOR		RECEIVER	
		CONNECTION TO RECEIVER	DIAL SETTING	DIAL SETTING	ADJUST
1	Follow preliminary instructions.	To Q202 base (converter) thru .1MF capacitor.	262.5KHz	1000KHz	T202 for max.
2	Same as step 1.	Same as step 1.	262.5KHz	1000KHz	T202 for max.
3	Same as step 1.	Same as step 1.	262.5KHz	1000KHz	T201 for max.
4	Same as step 1.	Same as step 1.	262.5KHz	1000KHz	T201 for max.
5	Reassemble radio with exception of cover. Connect +14 VDC to A+ cable lead of radio. Remove J202 from P401 on fader panel & connect a 3.2 ohm load resistor between the blue or yellow lead of J202 & black leads or set fader control to mid-range & connect the 3.2 ohm load resistor between either pin 4 or pin 5 of output socket P804 & chassis gnd. Connect VTVM or scope across load resistor. Set volume control to max. & adjust generator as the alignment proceeds to maintain 1.8V RMS across the load resistor.	Thru dummy antenna (diagram D) to antenna input 	1610KHz	1610KHz	1. VC201A (osc.) max. 2. VC201B (R.F.) max. 3. VC104 (ant.) max. (Repeat)
6	Tune coils by adjusting screw part of each core.	Same as step 5.	1000KHz	1000KHz	1. L302 (osc.) max. 2. L303 (R.F.) max. 3. L301 (ant.) max. (Repeat)
7	Repeat adjustments in steps 5 and 6, if necessary, to improve dial tracking.				
8	After dial tracking is completed, cement brass screw part of each core to its grommet on carriage housing. Reassemble sub dial, bezel, and cover.				

**CAUTION: Avoid scratching sub dial on removal. (See Disassembly Instructions.)

MPX ALIGNMENT PROCEDURE

EQUIPMENT

Frequency Counter - Itron 600 or equivalent.

SERVICE NOTES

Good multiplex operation requires proper alignment of FM RF, I.F., and detector circuits. See Troubleshooting Procedure before proceeding to determine whether multiplex alignment is necessary.

This phase-locked loop IC multiplex decoder system is quite simple to align as only adjustment of the 76 KHz oscillator is required. This system also provides inherent rejection of unwanted signals, such as SCA, and rejection of supply line transients since the IC has an internal power supply regulator.

PRELIMINARY INFORMATION

1. Connect +14 VDC output from power supply to A+ cable lead, and negative lead of power supply to radio chassis.
2. Use 76 KHz oscillator test point (pin 11, IC201 for indication of oscillator output. (Do not short to adjacent pins when using pin 11 as test point.) (FM Mode)
3. Tune radio to unmodulated FM signal of about 1.0 mv (to quiet FM noise).

STEP	PROCEDURE
1	Connect frequency counter to 76KHz osc. test point.
2	Adjust 76KHz osc. control VR301 for 18,950 to 19,050 Hz on frequency counter.

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
		CAPACITORS	
C100	C	390 pf, 10%/100V, AM antenna, EOHF only	3L0-0010-24
C101	C	3.3 pf ± .5/500V, FM RF input	3L0-0006-13
C102	C	4.7 pf ± .5/500V, FM RF	3L0-0006-17
C103	C	22 pf/500V, Ant. input	3L0-0007-13
C104	C	4.7 pf ± .5/500V, Ant. input	3L0-0006-17
C105	C	4.7 pf ± .5/500V, FM mixer input	3L0-0006-17
C106	C	8.2 pf ± .5/500V, FM mixer input divider	3L0-0006-20
C107	C	220 pf/500V, FM mixer 10.7 MHz trap	3L0-0007-15
C109	C	.01 mf/16V, FM RF B+ filter	3L0-0008-21
C110	C	.01 mf/16V, FM mixer B+ filter	3L0-0008-21
C111	C	.001 mf/50V, FM mixer emit. bypass	3L0-0007-37
C113	C	2.0 pf ± .25/500V, FM osc. cplg.	3L0-0006-52
C114	C	6.8 pf ± .5/500V, FM osc. tank	3L0-0006-16
C115	C	68 pf/100V, FM osc. tank	3L0-0010-20
C116	C	.01 mf/16V, FM osc. base	3L0-0008-21
C117	C	.05 mf +80 -20%/10V, FM AGC filter	3L0-0008-81
C118	C	.05 mf/10V, FM AGC bypass	3L0-0008-81
C119	C	180 pf/500V, FM AGC cplg.	3L0-0007-36
C120	C	.05 mf/10V, FM osc. B+ bypass	3L0-0008-81
C121	C	.05 mf/10V, IC101 bypass	3L0-0008-81
C122	C	.05 mf/10V, IC101 bypass	3L0-0008-81
C123	C	10 mf/10V, IC101 B+ filter	3L0-0011-10
C124	C	.05 mf/10V, FM det. bypass	3L0-0008-81
C125	C	.47 mf/10V, AFC filter	3L0-0011-14
C126	C	.01 mf/16V, FM det. audio out.	3L0-0008-21
C127	C	.1 mf/10V, IC101 bypass	3L0-0008-26
C128	C	4.7 pf ± .5/500V, FM det. cplg.	3L0-0006-17

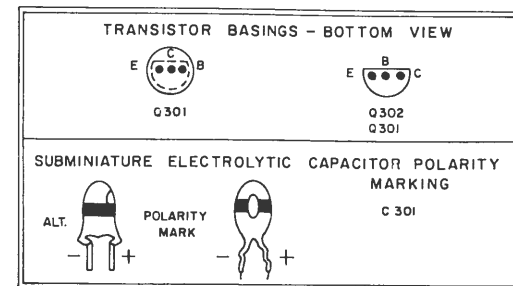
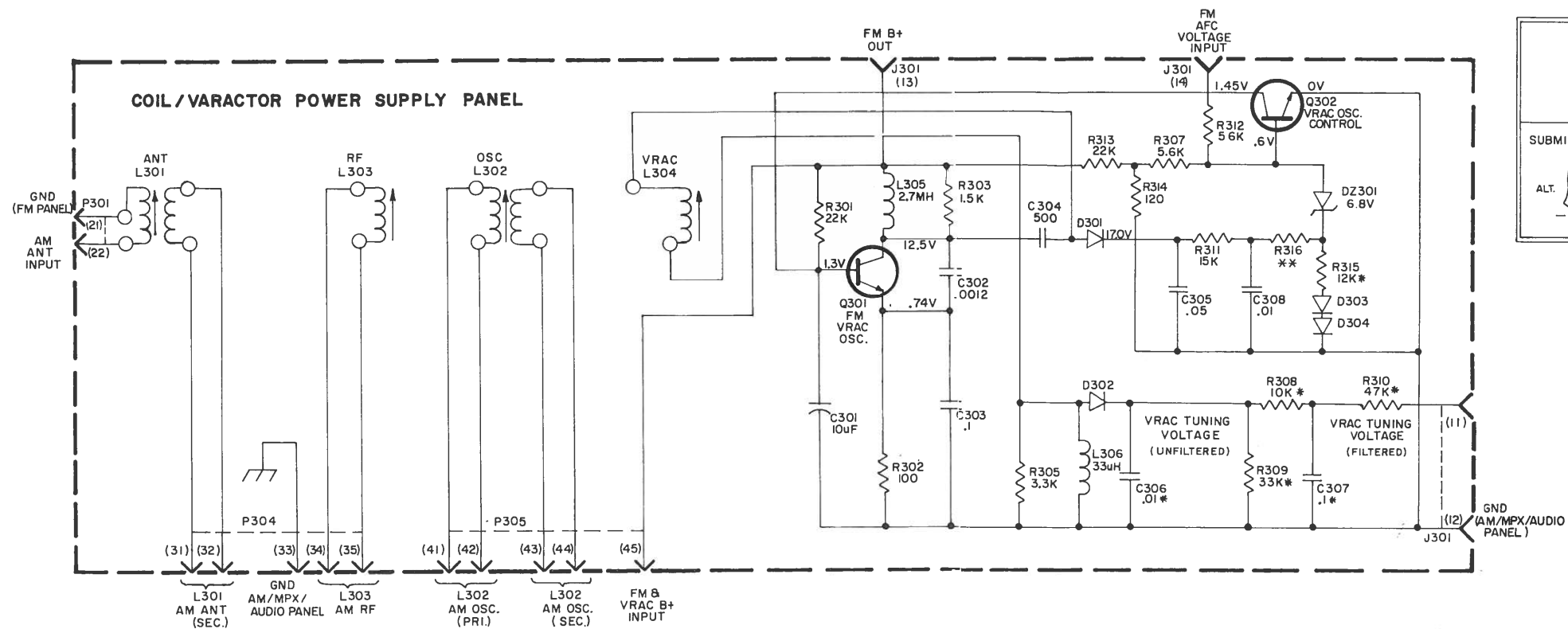
SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
C129	C	180 pf/500V, IC101 bypass	3L0-0007-36
C130	C	10 mf/25V, FM B+ filter	3L0-0030-6
C131	C	.01 mf/16V, FM RF base	3L0-0008-21
C132	C	.05 mf/25V, VRAC tuning volt. filter	3L0-0008-39
C133	C	.05 mf/10V, FM AGC bypass	3L0-0008-81
C134	C	.05 mf/10V, FM IF bypass	3L0-0008-24
C135	C	.005 mf/100V, FM AGC bypass	3L0-0007-22
C201	C	.05 mf/25V, B+ bypass	3L0-0008-39
C202	C	10 mf/20V, AGC filter	3L0-0011-10
C203	C	22 pf/500V, RF neut.	3L0-0007-13
C204	C	.001 mf/50V, Q201 base	3L0-0007-37
C205	C	33 mf/16V, B+ filter	3L0-0008-8
C206	C	.05 mf/10V, Q201 emitter	3L0-0008-81
C207	C	150 pf/50V, N750, RF tank	3L0-0006-28
C208	C	150 pf/50V, N750, temp. comp.	3L0-0006-28
C209	C	.015 mf/25, RF coupling	3L0-0008-18
C210	C	.005 mf/100V, Q202 base	3L0-0007-22
C211	C	390 pf/50V, AM osc.	3L0-0006-47
C212	C	.01 mf/50V, Q202 emitter	3L0-1001-8
C213	C	10 mf/10V, AGC filter	3L0-0030-6
C214	C	330 pf/500V, AGC coupling	3L0-0007-1
C215	C	.001 mf/50V, Q203 base	3L0-0007-37
C216	C	.02 mf/16V, B+ bypass	3L0-0008-17
C217	C	.005 mf/100V, Audio filter	3L0-0007-22
C218	C	1.0 mf/50V, IC201 input	3L0-0032-2
C219	C	IC201 coupling, 1.0 mf	3L0-0011-3
C220	C	1.0 mf/35V, Audio coupling	3L0-0011-3
C221	C	.01 mf/16V, AM det. filter	3L0-0008-21
C222	C	1000 mf/16V, B+ filter	3L0-0030-25
C223	C	.05 mf/25V, IC201 coupling	3L0-0008-39
C224	C	.22 mf/3V, DC filter	3L0-0011-15
C225	C	.47 mf/3V, DC filter	3L0-0011-14
C226	C	390 pf/100V, ± 3%, 75 KHz osc.	3L0-0006-78
C227	C	.0068 mf/100V, Audio filter	3L0-0007-55
C228	C	.012 mf/16V, De-emphasis	3L0-0008-57

*Warranty Component Category

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
C229	C	.0068 mf/100V, Audio filter	3L0-0007-55
C230	C	.012 mf/16V, De-emphasis	3L0-0008-57
C231	C	See NOTE 1	
C232	C	See NOTE 1	
C233	C	.001 mf/50V, IC203 input	3L0-0007-37
C234	C	.001 mf/50V, IC203 input	3L0-0007-37
C235	C	150 mf/16V, DC feedback	3L0-0030-11
C236	C	150 mf/16V, DC feedback	3L0-0030-11
C237	C	.01 mf/12V, Audio stab.	3L0-0008-67
C238	C	.22 mf/50V, Audio stab.	3L0-1001-34
C239	C	.1 mf/50V, B+ bypass	3L0-0008-71
C240	C	.1 mf/50V, B+ bypass	3L0-0008-71
C241	C	.22 mf/50V, Audio stab.	3L0-1001-34
C242	C	.01 mf/12V, Audio stab.	3L0-0008-67
C243	C	1500 mf/10V, L. channel out.	3L0-0030-21
C244	C	1500 mf/10V, R. channel out.	3L0-0030-21
C245	C	220 mf/16V, B+ filter	3L0-0030-12
C301	C	10 mf/20V, VRAC osc. base	3L0-0011-10
C302	C	.0012 mf/500V, VRAC osc. tank	3L0-0007-20
C303	C	.1 mf/50V, VRAC osc. tank	3L0-1001-15
C304	C	500 pf/150V, VRAC osc. coupling	3L0-0006-23
C305	C	.05 mf/25V, VRAC rect. filter	3L0-0008-39
C306	C	.01 mf/25V, VRAC tuning volt. filter	3L0-0008-16
C307	C	.1 mf/16V, VRAC tuning volt. filter	3L0-0008-62
C308	C	.01 mfd/25V, VRAC supply filter	3L0-0008-16
C401	C	180 pf/50V, Left front speaker	3L0-0006-25
C402	C	180 pf/50V, Right rear speaker	3L0-0006-25
C403	C	180 pf/50V, Right front speaker	3L0-0006-25
C404	C	180 pf/50V, Left rear speaker	3L0-0006-25
VARIABLE CAPACITORS			
VC101	C	1.7 to 10 pf, FM ant. trim	3L1-0004-1
VC102	C	1.7 to 10 pf, FM RF trim	3L1-0004-1
VC103	C	1.7 to 10 pf, FM osc. trim	3L1-0004-1

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
VC104	C	25 to 150 pf, AM ant. trim, E1SF and E1DF only	3L1-0003-11
VC104	C	12 to 46 pf, AM ant. trim, E0HF only	3L1-0003-12
VC201 A & B	C	160 pf nom., AM osc. trim and 60 pf nom., AM RF trim	3L1-0002-9#
DIODES			
D101	P	FM AGC	3L4-3002-31
D102	P	FM AGC	3L4-3002-31
D201	P	AM AGC detector	3L4-2003-1
D202	P	AM detector	3L4-2003-1
D203	P	AM/FM Switch to IC 201	3L4-3002-33
D301	P	VRAC osc. rectifier	3L4-3002-32
D302	P	VRAC osc. rectifier	3L4-3002-32
D303	P	VRAC osc. control supply	3L4-3002-7
D304	P	VRAC osc. control supply	3L4-3002-7
DV601	P	Led Stereo Indicator	3L4-3004-2
PILOT LAMPS			
DS801	K	14 volt pilot lamp	D4AB-13465-AA#
DS802	K	14 volt pilot lamp	D4AB-13465-AA#
FILTERS AND NETWORKS			
F101	B	I. F. filter, 10.7 MHz	3L5-5003-1
F101	B	I. F. filter, 10.7 MHz (option)	3L5-5004-1
F102	B	I. F. filter, 10.7 MHz	3L5-5003-1
F102	B	I. F. filter, 10.7 MHz	3L5-5004-1
NOTE: F101 & F102 must have same part No. & color			
N101	B	FM I. F. amp.	3L5-0020-1
INTEGRATED CIRCUITS			
IC101	S	AE907-1 FM I. F. amp.	3L4-9007-1
IC201	S	AE904-5, FM MPX decoder, use with C219 part 3L0- 0011-3 only	3L4-9004-5
	S	AE904-7, FM MPX decoder, use with C219 part 3L0- 0011-3 only	3L4-9004-8
IC202	S	See NOTE 1 - 2 options	
IC203	S	See NOTE 1 - 2 options	

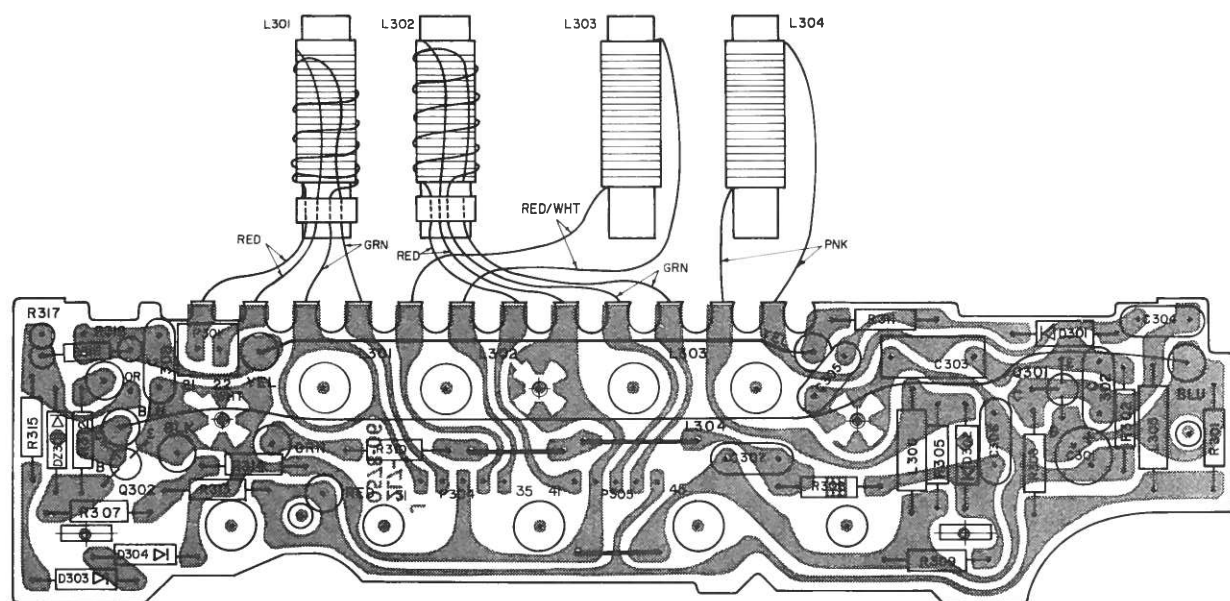
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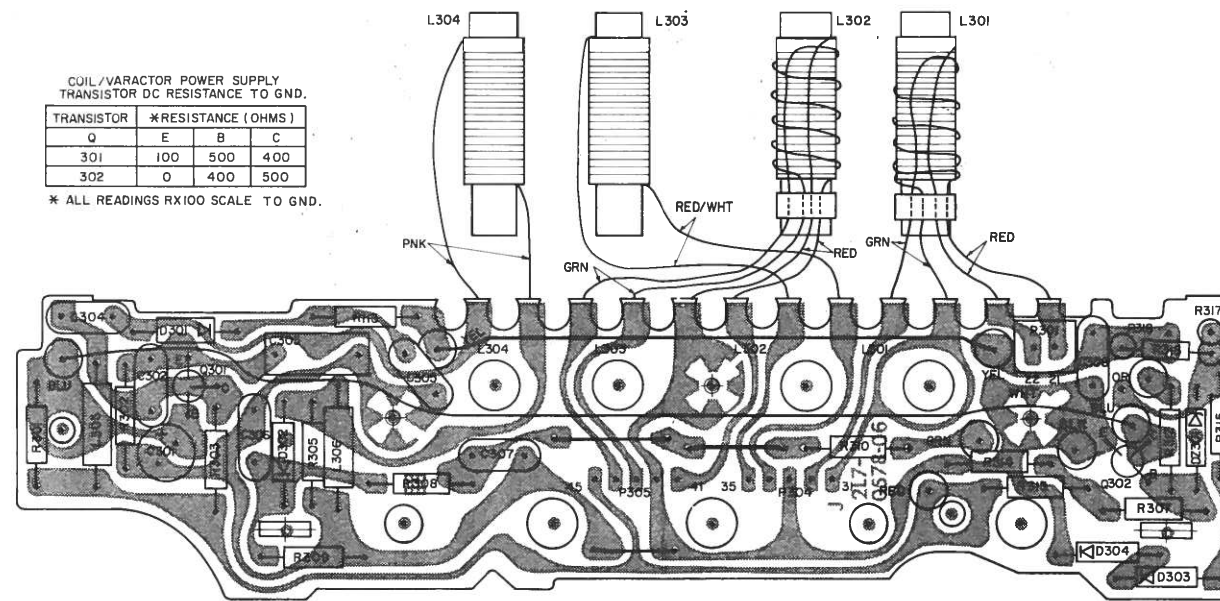
NOTES:

1. ALL VOLTAGES MEASURED WITH A HI-IMPEDANCE VTVM UNDER NO SIGNAL CONDITIONS AND +14.4 V. A + SUPPLY WITH RADIO SET FOR FM & VOL. CONTROL SET TO MIN. EXCEPT WHERE OTHERWISE NOTED.
2. ALL RESISTORS ARE 1/4 W EXCEPT WHERE OTHERWISE NOTED. RESISTANCES ARE IN OHMS, K = 1000.
3. CAPACITANCE (UNLESS OTHERWISE SPECIFIED) VALUES LESS THAN ONE - MICROFARADS (MF) VALUES ABOVE ONE - PICOFARADS (PF)
4. TUNING RANGE - AM 530 KHZ to 1620 KHZ (I.F. 262.5 KHZ) TUNING RANGE - FM 88 MHZ to 108 MHZ (I.F. 10.7 MHZ)

- * VALUES SUBJECT TO CHANGE WITH PRODUCTION CENTERING OF TOLERANCE
- ** SELECTABLE TO MEET FM END RANGE
- GROUND, RADIO CHASSIS OR HOUSING
- GROUND, P.W. PANEL

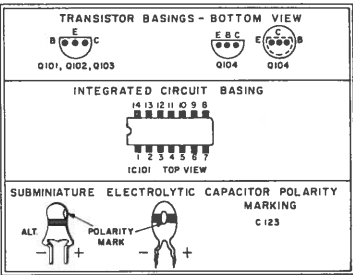
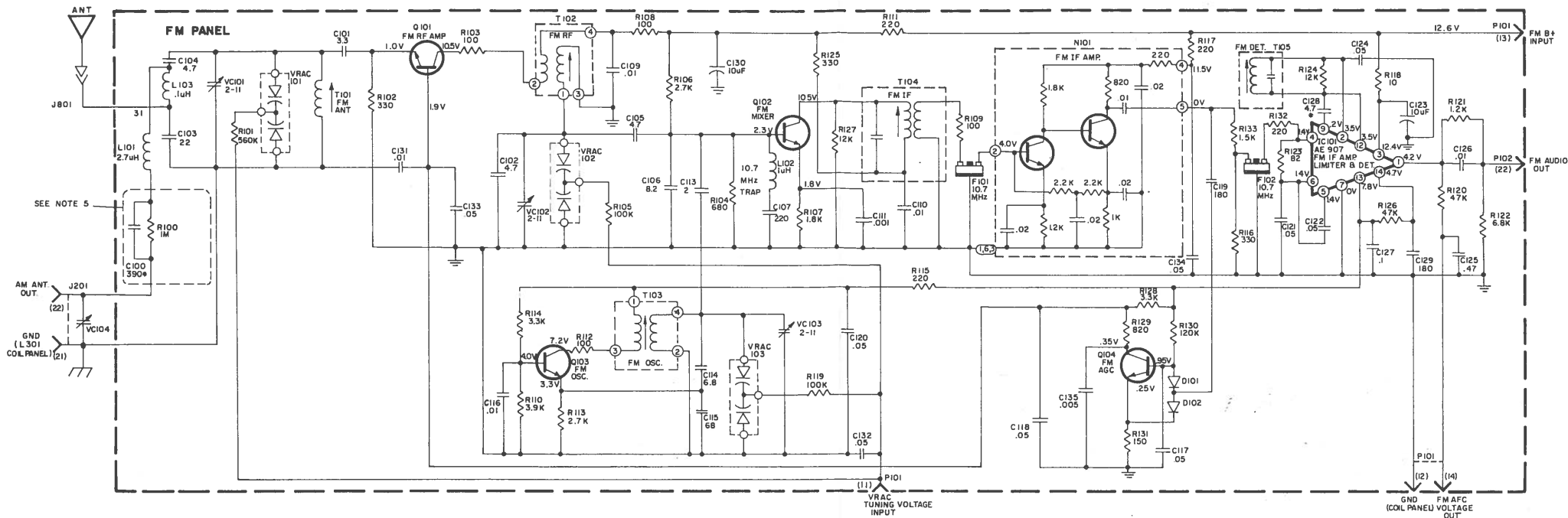


TOP COMPONENT VIEW



BOTTOM COPPER VIEW

FORD 1981 SERIES

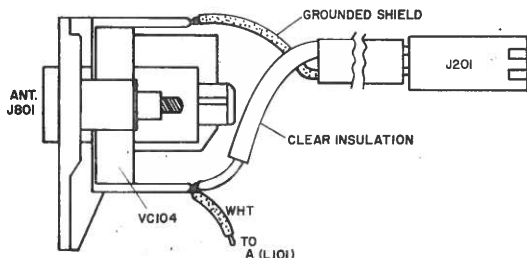
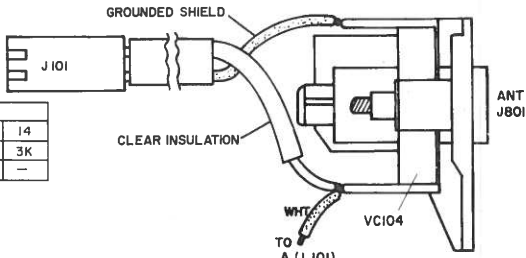


- NOTES:
1. ALL VOLTAGES MEASURED WITH HI-IMPEDANCE VTVM UNDER NO SIGNAL CONDITIONS AND +14.4V. A + SUPPLY WITH RADIO SET FOR FM & VOL. CONTROL SET TO MIN. EXCEPT WHERE OTHERWISE NOTED.
 2. ALL RESISTORS ARE 1/4 W EXCEPT WHERE OTHERWISE NOTED. RESISTANCES ARE IN OHMS, K = 1000.
 3. CAPACITANCE (UNLESS OTHERWISE SPECIFIED) VALUES LESS THAN ONE MICROFARADS (MF) VALUES ABOVE ONE - PICOFARADS (PF)
 4. TUNING RANGE - FM 88 MHZ TO 108 MHZ (I.F. 10.7 MHZ)
- * VALUES SUBJECT TO CHANGE WITH PRODUCTION CENTERING OF TOLERANCE
- GROUND, RADIO CHASSIS OR HOUSING
- GROUND, P.W. PANEL
5. FOR ANTENNA CAPACITANCE GREATER THAN 150 P.F. ADD C100 AND R100, OTHERWISE ADD A SHORTING WIRE TO CONNECT L103 TO VC104
6. LAST SYMBOL R133, C135

DC RESISTANCE TO GND.

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
IC101	2.5K	2.7K	700	950	1K	7K	0	700	60	500	2.1K	2.6K	1.6K	3K
NI01	0	2.1K	0	950	300 TO 1K	0	-	-	-	-	-	-	-	-

TOP COMPONENT VIEW

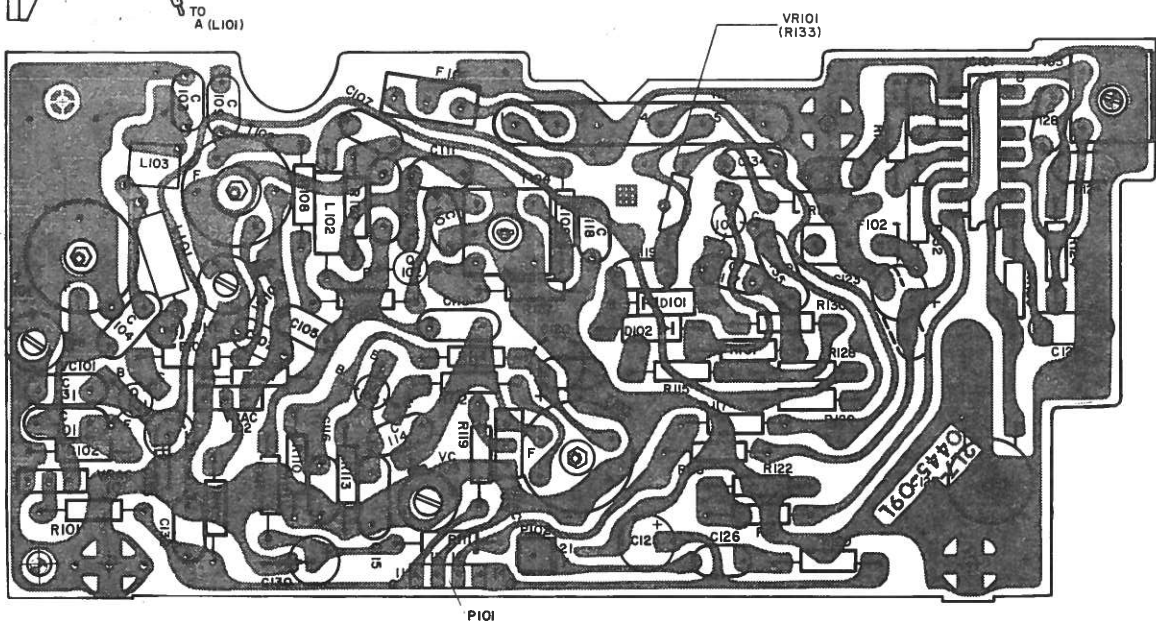
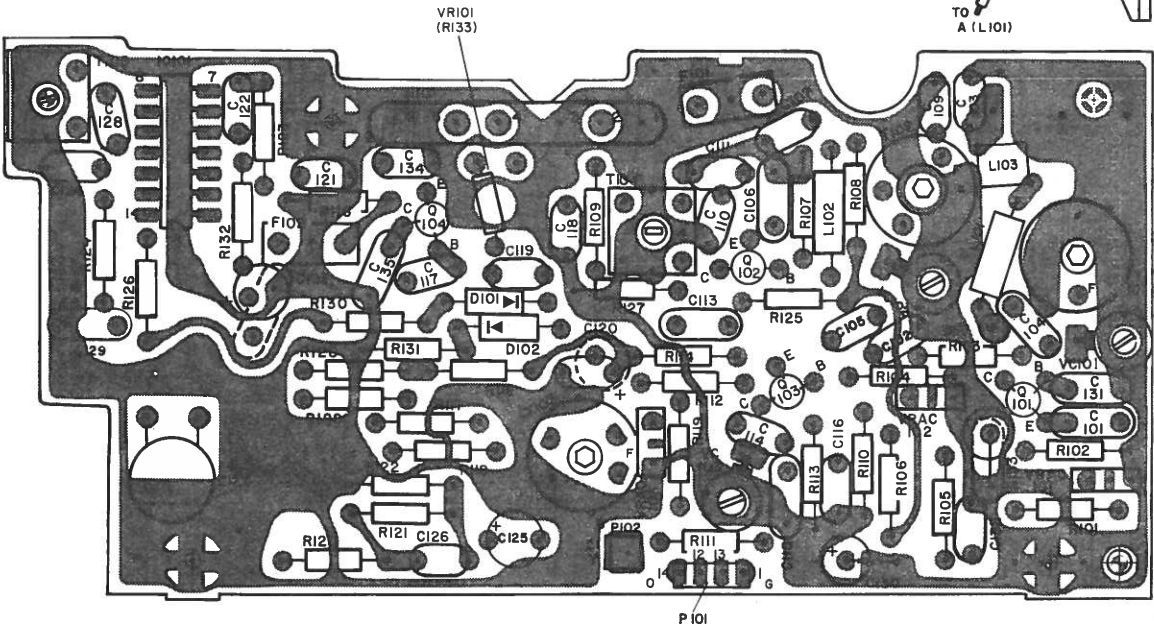


DC RESISTANCE TO GND.

	*RESISTANCE (OHMS)			
Q	E	B	C	
Q101	330	1.4K	1.3K	
Q102	1.4K	630	2K	
Q103	2.4K	2.5K	2K	
Q104	120	11K	3K	

* ALL READINGS RX100 SCALE TO GND.

BOTTOM COPPER VIEW



FORD 1981 SERIES

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
		COILS	
L101	D	2.7 μ h, RF choke, AM ant.	312-0023-22
L102	D	1 μ h, 10.7 MHz trap	312-0023-1
L103	D	RF choke	312-0037-6
L201	D	2.7 mh, 5%, RF choke	312-0023- 5
L301	D	AM ant. tuning	312-0007-11
L302	D	AM osc. tuning	312-0002-8
L303	D	AM RF tuning	312-0007-10
L304	D	FM varac. osc. tuning	312-0027-1
L305	D	2.7 mh, 5%, RF choke	312-0023-5
L306	D	33 mh, 5%, VRAC osc. tank	312-0023-9
L802	D	A+ choke (part of A+ cable assy.)	7L6-0479-9
		TRANSISTORS	
Q101	A	FM RF amp. (white, yellow)	314-6007H35
Q102	A	FM mixer (green, yellow)	314-6007H21
Q103	A	FM osc. (blue, yellow)	314-007H23
Q104	A	FM AGC (red)	314-6007H4
Q201	A	AM RF amp. (white)	314-6007H1
Q202	A	AM conv. (yellow)	314-6007H2
Q203	A	AM I. F. amp. (green)	314-6007H3
Q204	A	AM FM B+ switch	314-6010H1
Q301	A	FM VRAC osc.	314-6007H14
Q302	A	VRAC osc. control	314-6007H41
		RESISTORS	
		All resistors' values are in ohms and are 5%, 1/4 watt resistors except where noted otherwise.	
R100	G	1 meg., , AM ant. , Model EOHF only	
R101	G	560K, VRAC101 bias	
R102	G	330, Q101 emitter	
R103	G	100, Q101 collector	
R104	G	680, Q102 base	
R105	G	100K, VRAC102 bias	
R106	G	2.7K, Q102 base bias	
R107	G	1.8K, Q102 emitter	
R108	G	100, RF B+	
R109	G	100, I. F. filter input	
R110	G	3.9K, Q103 base bias	
R111	G	220, Mixer B+	

SYM-BOL	*W A R. R.	DESCRIPTION	SERVICE PART NO.
R112	G	100, Q103 collector	313R0101208
R113	G	2.7K, Q103 emitter	
R114	G	3.3K, Q103 base bias	
R115	G	220, Osc. B+	
R116	G	390, F102 input	
R117	G	220, FM I. F. B+	
R118	G	10, IC101 B+	
R119	G	100K, VRAC103 bias	
R120	G	47K, AFC divider	
R121	G	1.2K, Audio comp.	
R122	G	6.8K, Audio comp.	
R123	G	82, IC101 input	
R124	G	12K, T105 shunt	
R125	G	330, Mixer B+	
R126	G	47K, IC101 coupling	
R127	G	12K, Q102 collector	
R128	G	3.3K, Q104 B+	
R129	G	820, Q104 collector	
R130	G	120K, Q104 base	
R131	G	150, Q104 emitter	
R132	G	220, IC101 input	
R133	G	1.5K, RF gain	313R9561208
R201	G	330, AM RF B+	
R202	G	39K, Q201 bias	
R203	G	560, AM RF B+	
R204	G	330, Q201 emitter	
R205	G	220, AM B+	
R206	G	27K, Q202 bias	
R207	G	5.6K, Q202 base	
R208	G	1.8K, Q202 emitter	
R209	G	3.9K, AGC filter	
R210	G	33K, I. F. AGC	66-11863643
R211	G	1.8K, AGC filter	
R212	G	100K, Q203 bias	
R213	G	15K, Q203 base	
R214	G	5.6, Q203 emitter	
R215	G	1000, I. F. B+	
R216	G	6.8K, Audio filter	
R217	G	220K, AM detector bias	
R218	G	180, 10%, 2W, AM B+	
R219	G	620, 10%, 1/2W, Stereo indicator	
R220	G	330, Q204 B to E	66R16283508
R221	G	1.8K, Q204 base	
R222	G	47K, Q204 collector	
R223	G	3.3K, DC filter	
R226	G	33, 10%, 1/2W, B+ drop.	

*Warranty Component Category

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
R227	G	20K, 2%, 1/4W, 75KHz osc.	3L3-0028- 4
R228	G	4.3K, Audio coupling	
R229	G	4.7K, L. channel load	
R230	G	4.3K, Audio coupling	
R231	G	4.7K, R. channel load	3L3R9101208
R232	G	470, IC202 input	
R233	G	470, IC203 input	
R234	G	1.0, Audio stabilizer	
R235	G	1.0, Audio stabilizer	3L3R9101208
R236	G	22, Audio stabilizer	3L3R0221208
R237	G	360, Audio stabilizer	3L3R9108208
R238	G	1.0, 10%, 1/2W, Audio stabilizer	
R239	G	1.0, 10%, 1/2W, Audio stabilizer	
R240	G	360, Feedback divider	
R241	G	22, Audio stabilizer	3L3R0221208
R242	G	AM-FM Switch to Q 204	3L3-3151225
R301	G	22K, Q301 base bias	
R302	G	100, Q301 emitter	
R303	G	1.5K, L305 shunt	
R305	G	3.3K, L306 loading	3L3R9108208
R307	G	5.6K, Q302 base	
R308	G	10K, VRAC supply filter	
R309	G	33K, VRAC supply load	
R310	G	47K, VRAC supply filter	3L3R0221208
R311	G	16K, Q302 control supply	
R312	G	56K, Q302 base	
R313	G	22K, B+ divider	

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
R314 R315 R316	G G G	120, B+ divider 12K, D303 & D304 protection 5.6K, Q302 control supply	412-0022-1
SWITCHES			
S803	I	AM/FM switch	
TRANSFORMERS			
T101	E	FM ant. tuning	
T102	E	FM RF tuning	
T103	E	FM osc., tuning	
T104	E	10.7 MHz, FM I. F.	
T105	E	10.7 MHz, FM detector	
T201	E	262.5 KHz, AM 1st I. F.	
T202	E	262.5 KHz, AM 2nd I. F.	
CONTROLS			313-0027-5
VR201	H	5K, 76 KHz, Osc. adjust	
VR401	H	Dual 35 ohms, Fader control, R. & L. channels	
VARACTORS			314-3508-2
VRAC101	P	FM ant. tuning (blue)	
VRAC102	P	FM RF tuning (blue)	
VRAC103	P	FM osc. tuning (white)	

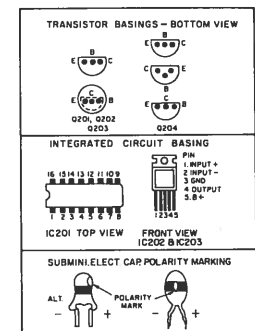
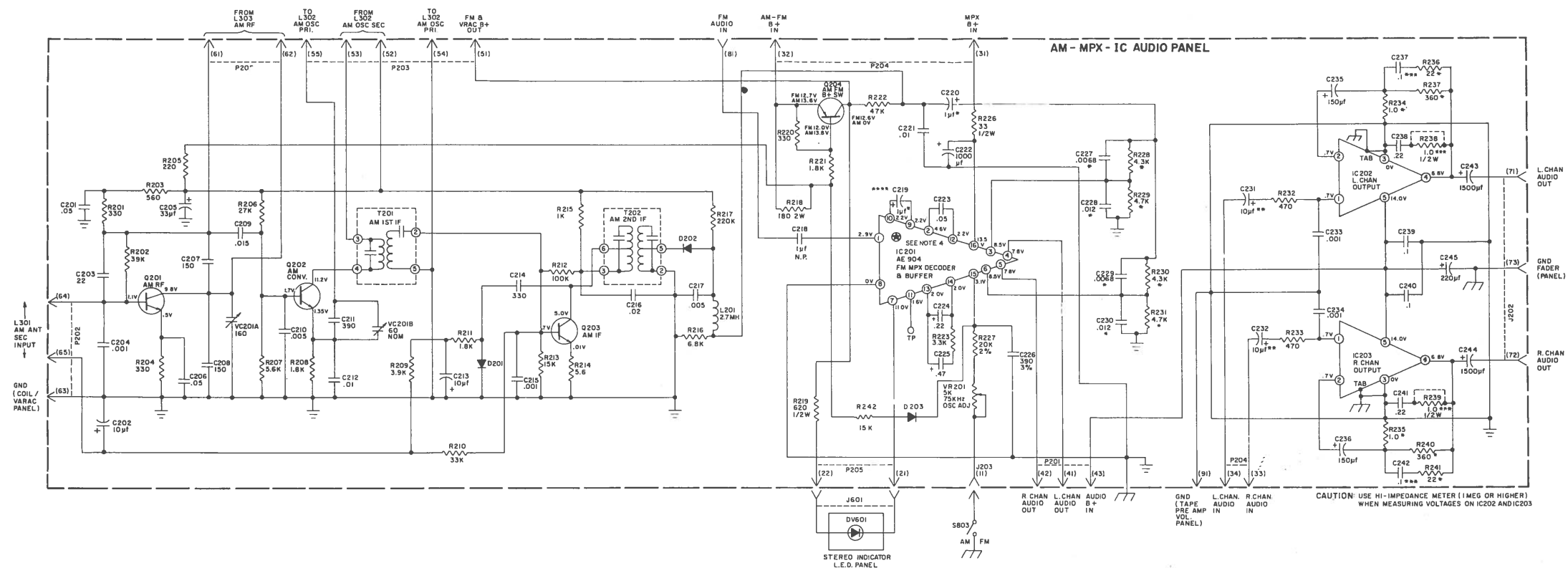
*Warranty Component Category

NOTE 1

Capacitors C231 and C232 to be used with IC202 and IC203 as shown in TABLE 1.
IC202 and IC203 must be the same part No.

TABLE 1

OPTION	IC202 & IC203	C231 & C232
1	3L4-9020-7 MARKED AE920-7	3L0-0030-27 2.2 MFD
2	3L4-9020-8 MARKED AE920-8	3L0-0030-6 2.2 MFD



- NOTES:**
- ALL VOLTAGES MEASURED WITH A HI-IMPEDANCE VTVM UNDER NO SIGNAL CONDITIONS AND +14.4V. A+ SUPPLY WITH RADIO SET FOR FM & VOL. CONTROL SET TO MIN. EXCEPT WHERE OTHERWISE NOTED.
 - ALL RESISTORS ARE 1/4W EXCEPT WHERE OTHERWISE NOTED. RESISTANCES ARE IN OHMS, K = 1000.
 - CAPACITANCE (UNLESS OTHERWISE SPECIFIED) VALUES LESS THAN ONE-MICROFARADS (1MF) VALUES ABOVE ONE-PICOFARADS (PF)
 - WHEN DECODER OR ANY ASSOCIATED COMPONENTS ARE REPLACED, REPLACE VR 201
- VALUES SUBJECT TO CHANGE WITH PRODUCTION CENTERING OF TOLERANCE
- ⏏ GROUND, RADIO CHASSIS OR HOUSING
- ⏏ GROUND, P.W. PANEL
- ⏏ STRONG STEREO SIGNAL
- WHEN 3L8-9020-12 USED FOR IC. USE INPUT COUPLING CAPACITANCE C231 & C232 OF 2.2µf (3L3-0030-27).
- WHEN 3L8-9020-12 USED, USE .05µf (3L3-0008-72) FOR C237 & C242 AND 2 SHORT JUMPERS FOR R238 & R239.
- WHEN 3L4-9004-07 IS USED FOR IC201 USE .47mf FOR C219.

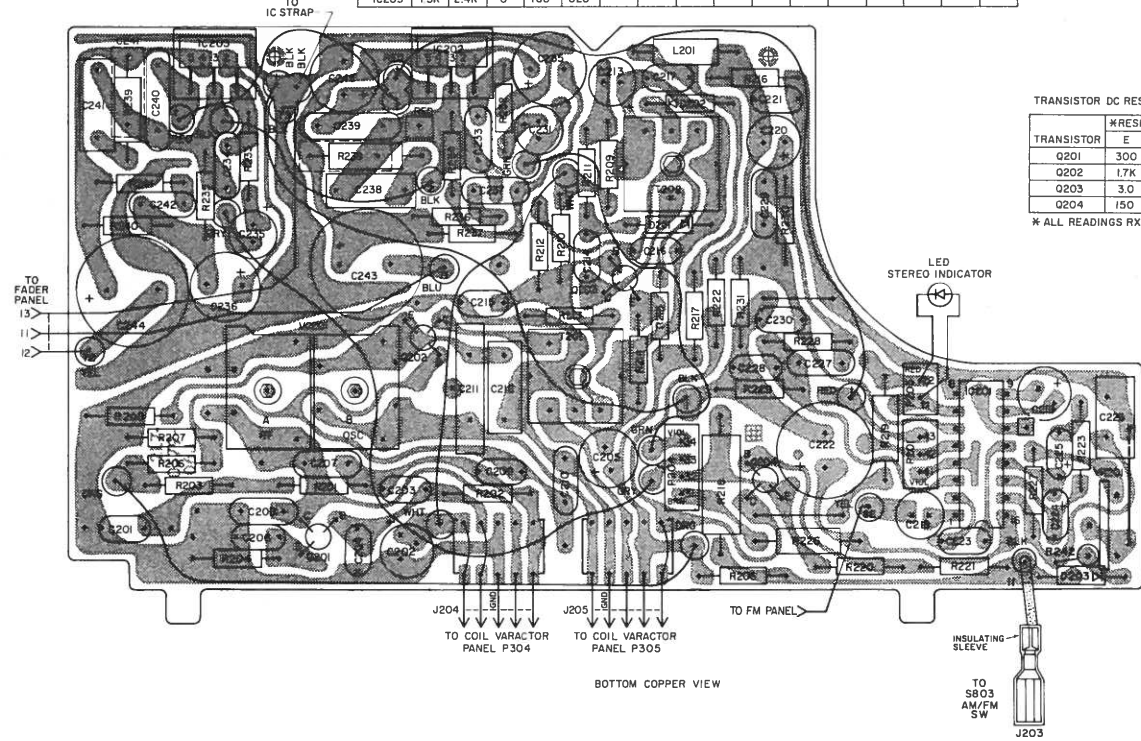
INTEGRATED CIRCUITS D-C RESISTANCE TO GND.

(PIN NO.)	RESISTANCE (OHMS)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC201	2.2K	1.4K	1.4K	1.2K	1.2K	1.3K	INF	0	2.8K	4K	2.7K	4K	4.5K	4.5K	3K	200
IC202	1.5K	2.4K	0	160	820	-	-	-	-	-	-	-	-	-	-	-
IC203	1.5K	2.4K	0	160	820	-	-	-	-	-	-	-	-	-	-	-

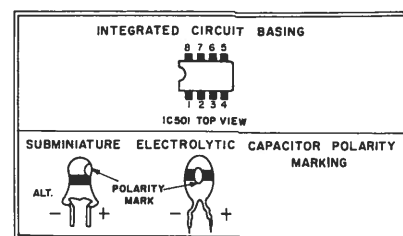
TRANSISTOR DC RESISTANCE TO GND.

TRANSISTOR	RESISTANCE (OHMS)		
	E	B	C
Q201	300	1.2K	2.2K
Q202	1.7K	2.0K	1.3K
Q203	3.0	850	2.1K
Q204	150	390	2.4K

* ALL READINGS RX100 SCALE TO GND.



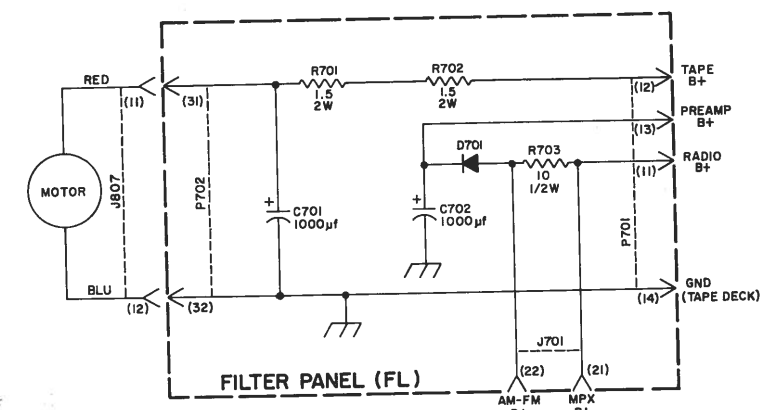
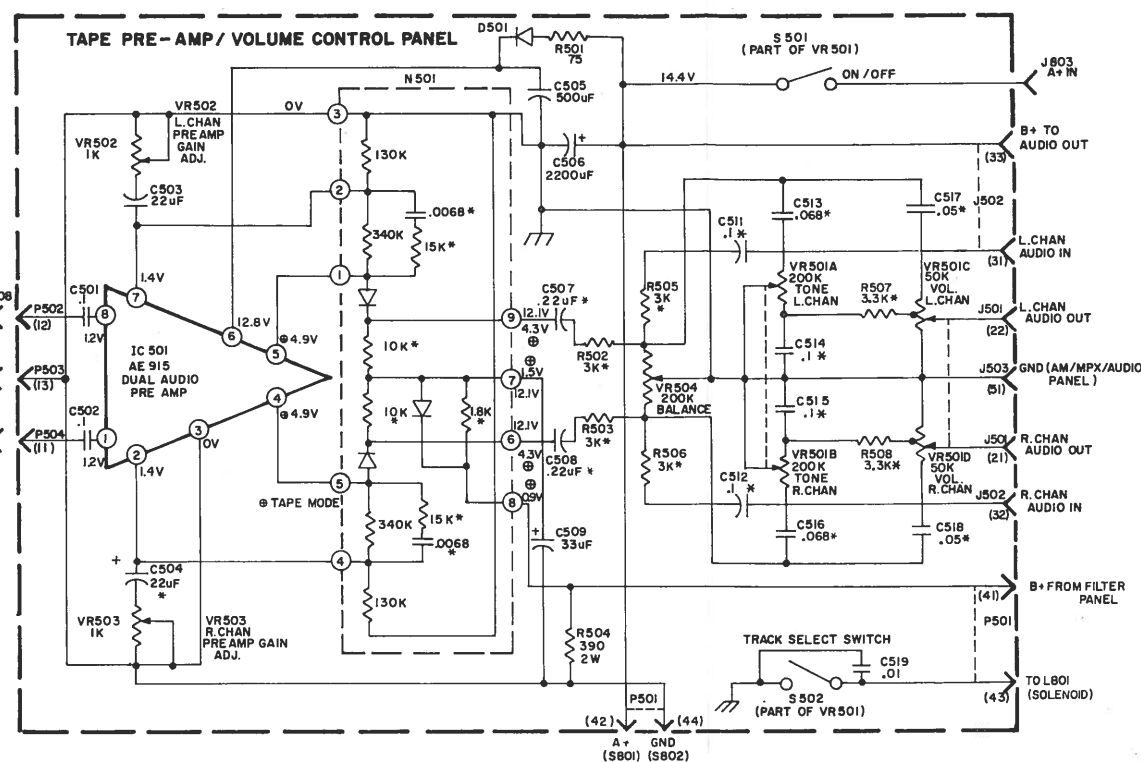
FORD 1981 SERIES



NOTES:

1. ALL VOLTAGES MEASURED WITH A HI-IMPEDANCE VTVM UNDER NO SIGNAL CONDITIONS AND +14.4V. A+ SUPPLY WITH RADIO SET FOR FM & VOL. CONTROL SET TO MIN. EXCEPT WHERE OTHERWISE NOTED.
2. ALL RESISTORS ARE 1/4 W EXCEPT WHERE OTHERWISE NOTED. RESISTANCES ARE IN OHMS, K = 1000.
3. CAPACITANCE (UNLESS OTHERWISE SPECIFIED) VALUES LESS THAN ONE - MICROFARADS (MF) VALUES ABOVE ONE - PICOFARADS (PF)

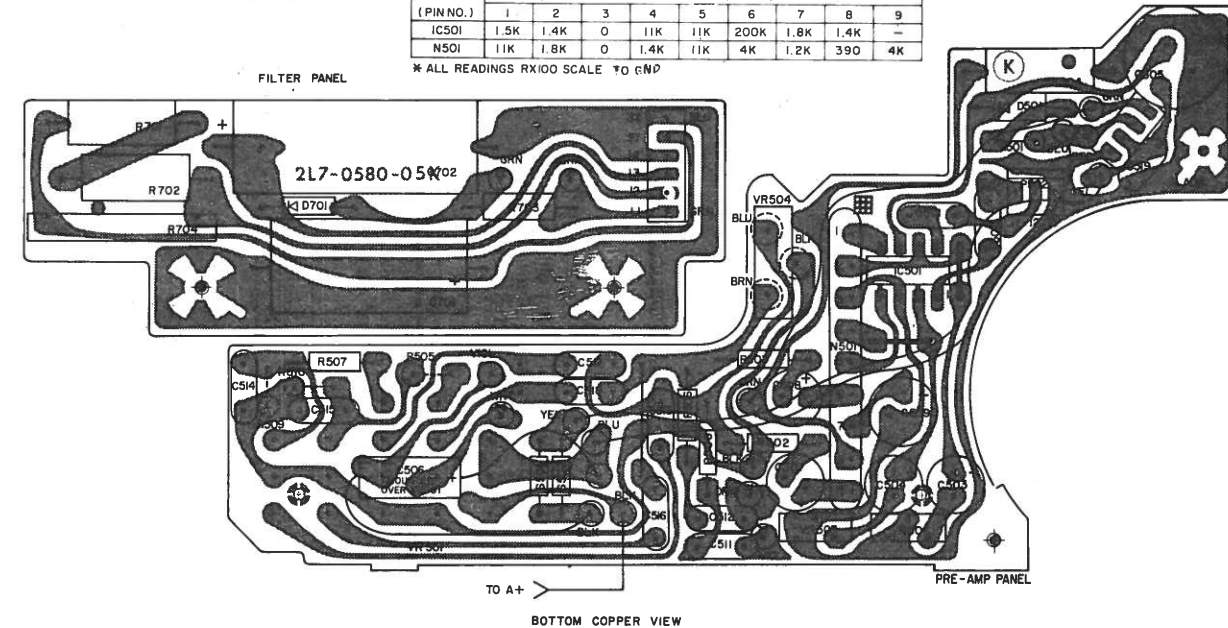
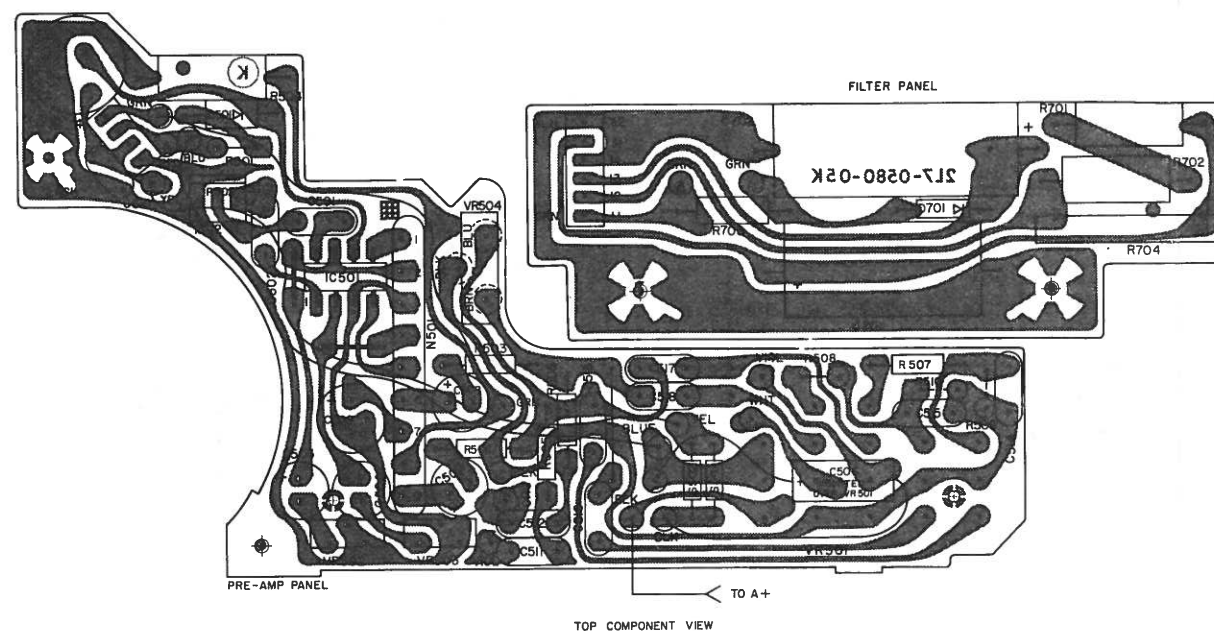
- * VALUES SUBJECT TO CHANGE WITH PRODUCTION CENTERING OF TOLERANCE
- GROUND, RADIO CHASSIS OR HOUSING
- GROUND, P.W. PANEL



IC B NETWORK D-C RESISTANCE TO GND.

(PIN NO.)	1	2	3	4	5	6	7	8	9
IC501	1.5K	1.4K	0	11K	11K	200K	1.8K	1.4K	—
N501	11K	1.8K	0	1.4K	11K	4K	1.2K	390	4K

* ALL READINGS RX100 SCALE TO GND



FORD 1981 SERIES

These parts are all new parts - not previously carried.
All parts are Warranty Component Category F.

DESCRIPTION	SERVICE PART NO.
Arm, Dial pointer	2L8-0837-2
Bracket, Clutch	2L8-0843-1
Bar, T	2L8-0827-1
Cam, Gate	2L8-0820-1
Clutch Assembly	7L6-0402-6
E-Ring	1W60971FE7
Guide, Rear slide	2L8-0819-2
Key Assembly, Left hand	7L6-0833-2
Key Assembly, Right hand	7L6-0833-1
Nut	LW-0063-1
Paddle & Carriage Assembly	7L6-0397-4
Plate, Front	2L8-0847-1
Screw, Sems.	1W31910FA1
Shuttle Plate Assembly	2L8-0822-2
Slide, Push button main	2L8-0824-2
Spring, Gate	2L8-0719-1
Spring, Bias	2L8-0844-1
Spring, Return	2L8-0828-1
Spring, Toggle	2L8-0813-1
Tuner Assembly, Mechanical	7L6-0852-1

TUNER REPLACEMENT PARTS

FOR TUNER ASSEMBLY 7L6-0579-1

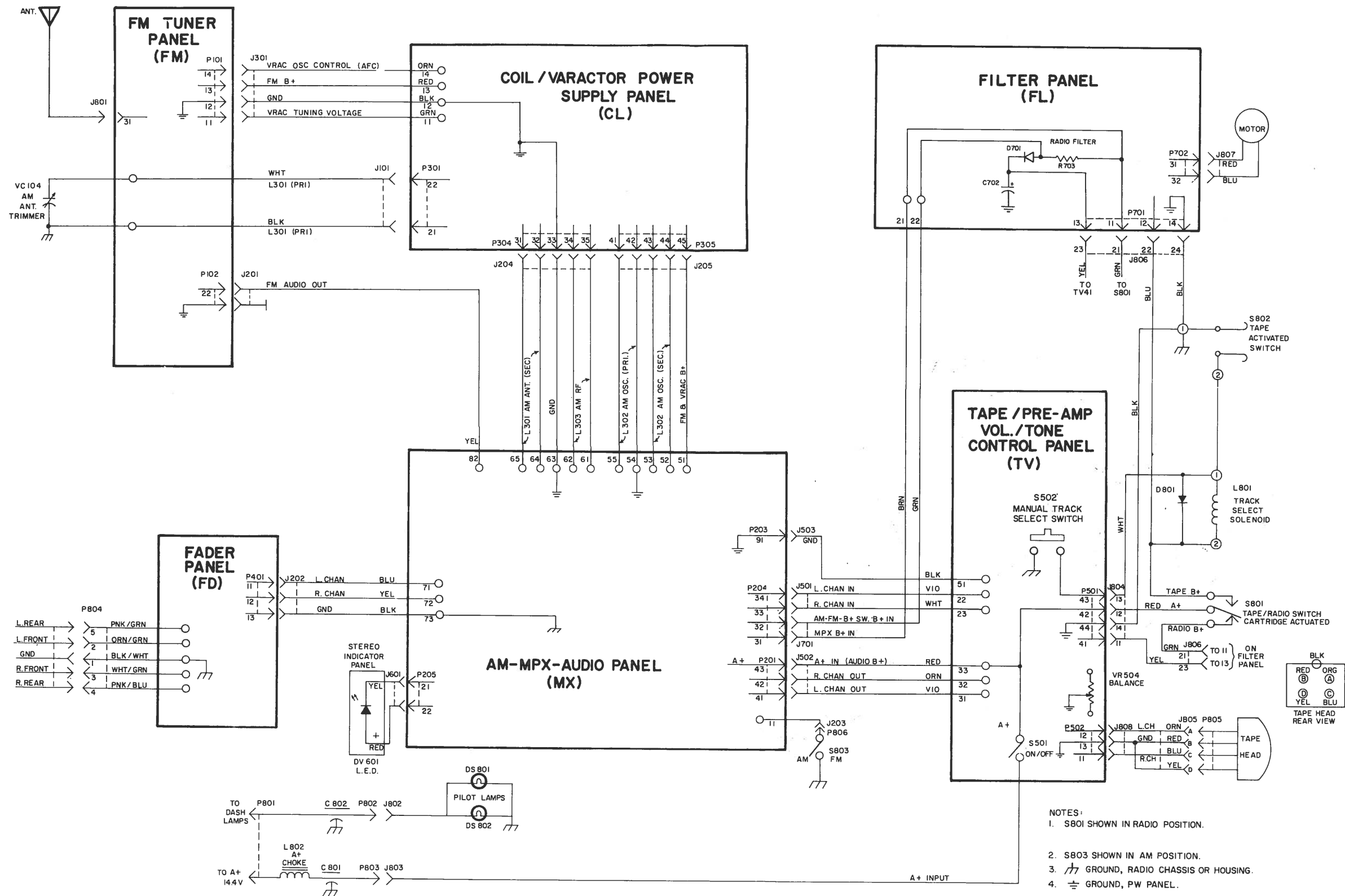
New parts not previously carried are indicated by the symbol "#" following the number.
All parts are Warranty Component Category F.

DESCRIPTION	SERVICE PART NO.
Arm, Dial pointer	7L6-0423-44
Ball Bearing, Paddle bar	7L6-0150-7
Bracket, Clutch	2L8-0684-2
De-clutch Cam	7L6-0423-7
De-clutch Lever	7L6-0423-9
De-clutch Plate Assembly	7L6-0423-8
Gear & Clutch Assembly	7L6-0423-13
Grommet, Carriage (4)	7L6-0150-15
Nut, Paddle bar	7L6-0150-11
Pointer, Dial	2L8-0672-2
Screw & Nut Assembly, Paddle bar	7L6-0423-15
Screw, Paddle bar	7L6-0423-16
Set Screw, De-clutch cam	7L6-0423-11
Spring, Clutch	7L6-0423-12
Spring, De-clutch	7L6-0423-10
Spring, Pointer arm	7L6-0150-51
Tuner Assembly, Mechanical	7L6-0579-1

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
		CAPACITORS	
C501	C	.1 mf/10V, Pre-amp input	3L0-0008-11
C502	C	.1 mf/10V, Pre-amp input	3L0-0008-11
C503	C	22 mf/15V, L. ch. bypass	3L0-0011-26
C504	C	22 mf/15V, R. ch. bypass	3L0-0011-26
C505	C	470 mf/16V, A+ filter	3L0-0030-29
C506	C	2200 mf/16V, A+ filter	3L0-0029-14
C507	C	.22 mf/10V, L. ch. tape out.	3L0-0011-12
C508	C	.22 mf/10V, R. ch. tape out.	3L0-0011-12
C509	C	33 mf/16V, Audio filter	3L0-0030-8
C511	C	.1 mf/50V, Audio cplg., L. chan.	3L0-0008-67
C512	C	.1 mf/50V, Audio cplg., R. chan.	3L0-0008-67
C513	C	.068 mf/12V, Hi-cut, L. chan.	3L0-0008-68
C514	C	.1 mf/50V, Bass boost, L. chan.	3L0-0008-67
C515	C	.1 mf/50V, Bass boost, R. chan.	3L0-0008-67
C516	C	.068 mf/12V, Hi-cut, R. chan.	3L0-0008-68
C517	C	.05 mf/12V, L. chan. cplg.	3L0-0008-72
C518	C	.05 mf/12V, R. chan. cplg.	3L0-0008-72
C519	C	.01 mf/25V, S502 bypass	3L0-0008-16
C701	C	1000 mf/16V, Motor B+ filter	3L0-0033-6#
C702	C	1000 mf/16V, Pre-amp. B+ filter	3L0-0033-2#
C702	C	1000 mf/16V, B+ filter (option)	3L0-0033-6#
C801	C	1000 pf/500V, A+ feedthru, R/T	7L6-0536-1
C802	C	1000 pf/500V, A+ feedthru, P.L.	7L6-0536-1
		COILS	
L801	D	Solenoid, track change (see tape mechanism parts list)	

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
		CONTROLS	
VR501A, B, C, D	H, I	Dual, 50K Vol./200K Tone, S501 on/off sw. & S502 Track Select Switch	3L3-0053-3
VR502	H	1K, 20%, pre-amp. gain adj. L. channel	3L3-0050-2
VR503	H	1K, 20%, pre-amp. gain adj. R. channel	3L3-0050-2
VR504	H	200K, Balance	3L3-0040-2
		DIODES	
D501	P	Noise rejection A+ line	3L4-2003-7
D701	P	AM-FM B+ switching	3L4-3002-20
DV601	P	L.E.D. stereo indicator	3L4-3004-2
DZ301	P	6.8V Zener, VRAC supply regulation	3L4-3506-43
DZ301	P	6.8V Zener (option)	3L4-3506-50
		INTEGRATED CIRCUITS	
IC501	S	Tape Pre-amp	3L4-9015-1
		NETWORKS	
N501	B	Tape pre-amp.	3L5-0019-2
		RESISTORS	
		All values in ohms and all 1/4 watt +5% except where stated otherwise.	
R501	G	75, A+ input	3L3-0751225#
R502	G	3K, Pre-amp output, L. channel	
R503	G	3K, Pre-amp output, R. channel	
R504	G	390, 2W, Pre-amp. B+	66-13963643#
R505	G	3K, L. channel coupling	
R506	G	3K, R. channel coupling	
R507	G	3.3K, Vol. tap, L. channel	
R508	G	3.3K, Vol. tap, R. channel	
R701	G	1.5 OHM, 2W, 5%, Motor B+	66-91562643#
R702	G	1.5 OHM, 2W, 5%, Motor B+	66-91562643#
R703	G	10 OHM, 1/2W, 5%, Radio A+	3L3R0108208#

*Warranty Component Category



FORD 1981 SERIES

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
S501 S502 S801	I I R	SWITCHES On/off switch Manual Track Select Switch Cartridge Activated Switch (see tape mechanism parts list)	Part of VR501 Part of VR501

*Warranty Component Category

New parts not previously carried are indicated by the symbol "#" following the number.
All parts are Warranty Component Category R.

ITEM	DESCRIPTION	SERVICE PART NO.
29	Actuator, Switch	7L6-0495-63
28	Belt, Drive	7L6-0844-14
38	Bottom Cover	7L6-0844-17
27	Bracket Assembly, Actuator bracket, shaft and switch	7L6-0495-62
26	Button, Thrust	7L6-0495-52
37	Chassis Assembly, Chassis & Guide	7L6-0844-16
20	Flywheel Assembly	7L6-0844-9
36	Housing Assy. Tape Head, Cam brkt. & bushing assembly	7L6-0495-83
25	Motor and Cable Assembly	7L6-0844-18
17	Nut, Plastic, Cam adjust	7L6-0495-28
16	Plunger Assembly	7L6-0495-78
15	Rectifier, Silicon diode	7L6-0495-14
11	Screw, Actuator bracket to guide	7L6-0495-67
12	Screw, Adjust cam	7L6-0495-50

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
S802	R	Tape Activated Switch (see tape mechanism parts list)	

ITEM	DESCRIPTION	SERVICE PART NO.
13	Screw, Cartridge lock	7L6-0495-44
14	Screw, Chassis assembly mtg.	7L6-0495-73
10	Screw, Housing & Solenoid mtg.	7L6-0495-9
9	Slide, Cartridge guide	7L6-0495-42
8	Solenoid Assembly	7L6-0495-74
6	Spring, Carriage	7L6-0495-31
5	Spring, Cartridge lock	7L6-0495-43
4	Spring, Conical sol. plunger	7L6-0495-46
3	Stripper, Tape	7L6-0495-82
2	TAPE MECHANISM ASSEMBLY	
34	Terminal	7L6-0817-1
30	Terminal Housing 2 Cir.	2L8-0753-1
31	Terminal Housing 3 Cir.	2L7-0499-2
32	Terminal Housing 4 Cir.	2L7-0499-3
7	Spring Actuator	2L7-0499-4
39	Cable Ass'y Head	7L6-0495-64
44	Terminal Housing	7L6-0844-19
45	Terminal	2L7-0335-12
		2L8-0509- 1

New parts not previously carried are indicated by the symbol "#" following the number.
All parts are Warranty Component Category R.

ITEM	DESCRIPTION	SERVICE PART NO.
29	Actuator	7L6-0845-29
9	Belt, Rubber drive	7L6-0845-9
61	Bottom Cover	7L6-0845-55
65	Cable Ass'y Head	7L6-0845-59
58	Cam, Stereo	7L6-0845-52
5	Capstan Block	7L6-0845-5
6	Capstan Shoe	7L6-0845-6
12	Cartridge Guide	7L6-0845-12
63	Chassis	7L6-0845-57
45	E-Ring, 3 mm	7L6-0845-39
47	E-Ring	7L6-0845-41
4	Flywheel Assembly	7L6-0845-4
25	Guide Plate	7L6-0845-25
59	Head, Playback with cable	7L6-0845-53
15	Head Moving Plate Assembly	7L6-0845-15
18	Locknut	7L6-0845-18
60	Motor and Cable Assembly	7L6-0845-54
19	Mounting Bracket, Head	7L6-0845-19
44	Nut, Hexagon, 3 mm	7L6-0845-38
46	Nut, Hexagon, 3 mm	7L6-0845-40
7	Polyslider	7L6-0845-7
17	Polyslider	7L6-0845-17
62	Plunger	7L6-0845-56
30	Pressure Arm Assembly	7L6-0845-30
43	Rectifier, Silicon diode	7L6-0495-14
50	Screw, w/Washer, 3 mm x 4 mm	7L6-0845-44
51	Screw, w/Washer, 2.6 mm x 8 mm	7L6-0845-45

ITEM	DESCRIPTION	SERVICE PART NO.
52	Screw, w/Washer, 3 mm x 5 mm	7L6-0845-46
53	Screw, w/Washer, 3 mm x 6 mm	7L6-0845-47
54	Screw, w/Washer, 3 mm x 6 mm	7L6-0845-48
55	Screw, Flat, 3 mm x 10 mm	7L6-0845-49
56	Screw, Plate, 3 mm x 8 mm	7L6-0845-50
57	Screw, Blind, 3 mm x 12 mm	7L6-0845-51
11	Screw, Chassis assembly mtg.	7L6-0845-11
23	Sending Claw 1	7L6-0845-23
24	Sending Claw 2	7L6-0845-24
27	Shaft, Sending Claw	7L6-0845-27
31	Shaft, Pressure arm	7L6-0845-21
21	Solenoid	7L6-0845-21
20	Spring, Azimuth	7L6-0845-20
13	Spring	7L6-0845-13
14	Spring	7L6-0845-14
22	Spring, Plunger	7L6-0845-22
32	Spring, Pressure arm	7L6-0845-32
26	Spring, Sending claw	7L6-0845-26
40	Switch, Radio/Tape	7L6-0845-34
28	Tape Guide	7L6-0845-28
2	TAPE MECHANISM ASSEMBLY	7L6-0818-1
36	Terminal Housing 2 Cir.	2L7-0499-2
37	Terminal Housing 3 Cir.	2L7-0499-3
38	Terminal Housing 4 Cir.	2L7-0499-4
8	Thrust Sheet	7L6-0845-8
33	Tube	7L6-0845-33

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*W A R R. R.	DESCRIPTION	SERVICE PART NO.
Z	Barrier, Light (2), bezel & sub dial	2L7-0489-1
L	Baseplate, Sub dial	2L8-0675-1
Z	Bolt, Mounting	LW-0072-1#
L	Bezel	EOAG-18933-CA
Z	Bracket, Ant. trimmer	2L8-0655-2
Z	Bracket, Shuttle	2L8-0510-1
O	Button, AM switch	2L7-0406-6
O	Button, FM switch	2L7-0406-5
O	Button, Push (5)	2L7-0270-1
N	Cable Assy., A+ choke and PL - includes P801	7L6-0479-9
N	Cable Speaker - includes Plug	7L6-0392-9
N	Cable Assy., Audio IC to Gnd - Black	4L1-0134-84#
N	Cable Assy., Audio IC - A+ - Red	4L1-0134-85#
N	Cable Assy., Audio IC to A+ - Red	4L1-0134-88#
N	Cable Assy., AM A+ - Orange	4L1-0134-89#
N	Cable Assy., Tape audio in - Green	4L1-0134-90#
N	Cable Assy., Tape audio in - Gray	4L1-0134-91#
N	Cable Assy., AGC - White	4L1-0134-92#
N	Cable Assy., Gnd to IC strap - Black	4L1-0134-103#
N	Cable Assy., Var Bias - Yellow	4L1-0134-95#
N	Cable Assy., Var Feedback - Blue	4L1-0134-96#
N	Cable Assy., Gnd - Black	4L1-0134-94
N	Cable Assy., RF FM Input - White	4L1-0134-104
N	Cable Assy., Solenoid gnd - Black	4L1-0134-98
N	Cable Assy., Track select - Yellow	4L1-0134-99
N	Cable Assy., Diode sw. - Green	4L1-0134-100
N	Cable Assy., A+ jumper - Blue	4L1-0134-86
Z	Clamp, Strain relief - A+ cable	2L8-0226-1
Z	Clamp, Strain relief, speaker cable	2L8-0226-2
Z	Clip, Fader	2L8-0705-1
Z	Clip, Pinion	2L8-0704-1
Z	Connector Assy., Audio output	4L1-0427-1
Z	Connector Assy., Ant. to coil bd.	4L1-0427-12
Z	Connector Assy., Stereo LED	4L1-0427-10
Z	Connector Assy., Audio output	4L1-0427-3
Z	Connector Assy., to FM PW	4L1-0427-2
Z	Connector Assy., Audio input	4L1-0427-4
Z	Connector Ass'y Filtered A+	4L1-0427-5
Z	Connector, Receptacle, J204, J205	2L7-0595-5
Z	Connector F Post (3)	2L8-0680-1
D	Core, AM osc.	2L8-0045-13
D	Core, Ant. and RF (2)	2L8-0069-20
D	Core, Varac osc.	2L8-0069-16
Z	Cover, Housing (top)	2L8-0652-4

*W A R R. R.	DESCRIPTION	SERVICE PART NO.
Z	Door, Tape	2L8-0600-1
Z	"E"-Ring, AM-FM mode push buttons	1W60970FA1
L	Escutcheon	2L8-0651-2
Z	"F" Posts (3)	2L8-0681-2
L	Filter, Light color	2L7-0398-2
Z	Grommet	2L7-0022-1
Z	Housing, Left side and back	2L8-0650-4
Z	Housing, Right side	2L8-0703-2
Z	Insulator FM	5L4-0091-2
Z	Insulator, Pre amp.	5L4-0141-1
Z	Insulator, Paper	5L4-0074-2
Z	Insulator, Fader	5L4-0109-1
Z	Insulator	5L4-0096-1
Z	Lead Ass'y to AM/FM switch black	7L6-0422-37
Z	Lead Ass'y FM input	4L1-0134-106
Z	Lead Ass'y ground black	7L6-0422-39
Z	Lead Ass'y A+ blue	4L1-0134-109
Z	Lead Ass'y ground to audio 1C black	4L1-0134-107
Z	Lead Ass'y A+input black	4L1-0134-108
N	Lug	2L8-0308-1
N	Lug, Ground for C506 or C507	2L8-0532-1
Z	Nut, Mounting	2L8-0061-1
Z	Nut, Vol. control & tuning (2)	28-1486-1
Z	Pad, Insulator for top of T202	2L7-0474-1
Q	Pinion, Shaft	2L7-0030-22
Z	Pin, AM & FM mode PB (2)	2L7-0582-1
Z	Pin, Toggle, AM & FM mode (2)	2L8-0557-1
Z	Pointer, Dial	2L8-0672-2
M	P.W. Assy., Fader, w/components	3L8-1062
M	P.W. Assy., MPX-IC-AUDIO, w/components	3L8-1070
M	P.W. Assy., Coil/Varactor, w/components	3L8-1071
M	P.W. Assy., LED stereo indicator	3L8-1069
M	P.W. Assy., FM panel, w/components	3L8-1088
M	P.W. Assy., Pre-amp, filter w/components	3L8-1083
N	P801, Part of A+ cable assy.	7L6-0479-9
N	P804, Part of speaker cable	7L6-0392-9
Z	Retainer Plate, Fader control	2L8-0312-3
Z	Retainer, Wire dress	2L7-0449-1
Z	Screw, AM-FM sw. to tuner	LW-0074-3#
Z	Screw, P.W. to base plate	LW-0075-1#
Z	Screw, #4B x 1/4, panel deck mtg.	42348S8M#
Z	Screw, Deck mounting, 4B x 1/4	LW-0074-2#
Z	Screw, Dress clamp, 4B x 3/8	42355S8M#
Z	Screw, #6B x 1/4, Filter P.W. to deck	42350S8M#
Z	Screw, Coil P.W. to tuner	42355S8M#
Z	Screw, Escutcheon to tuner, #6B x 3/8	42357S8M#
Z	Screw, Sub dial to escutcheon	LW-0070-1#
Z	Screw, Light filter to B. P.	52771S8M#

*Warranty Component Category

*W A R R.	DESCRIPTION	SERVICE PART NO.
Z	Screw, Deck to escutcheon	LW-0074-1
Z	Screw, Housing, cover, bottom, bezel (10)	42350S8M
Z	Screw, Top bezel (2)	42364S8M
Z	Screw, Ant. bracket to housing	LW-0077-1
Z	Screw, IC strap and panel	42348S8M
Z	Shaft, Tuning	2L7-0281-1
Z	Shaft, Tape door	2L8-0415-1
Z	Shield, Fader control	5L4-0070-1
Z	Shield, for T101 and T103 (2)	2L8-0480-1
D	Sleeve, Powdered iron, for ant., RF amp. and AM osc. (3)	2L8-0138-5
D	Sleeve, Paper (4)	5L4-0002-1
D	Sleeve, Powdered iron, Varac osc.	2L8-0138-9
Z	Socket Assy., Pilot light (2)	4L1-0095-3
Z	Socket, Antenna	2L7-0139-3
Z	Spacer IC, Audio output (2)	2L7-0532-1
Z	Spring, AM-FM mode push buttons (2)	2L8-0420-1

TAPE PLAYER REMOVAL

1. Follow instructions under TOP COVER REMOVAL and BEZEL REMOVAL.
2. Remove three phillips head screws from the front bottom edge of escutcheon and four hex head screws along bottom edge of housing, two on rear and one on each side near rear of housing.
3. Remove hex nut from Volume/Tone control shaft.
4. Disconnect four cables J501, J502, J701 and J503 (single black wire) from AM/MPX/AUDIO panel. CRITICAL LEAD DRESS: When reassembling, J503 black wire must be twisted around violet and white wires and dressed straight back to rear housing and down on AM/MPX/AUDIO panel.
5. Disconnect A+ lead (black) J803 from P803 (inside left side housing near Volume control).
6. Carefully separate tape player from radio section.

NOTE: For servicing tape player: Lay tape player right side up on bench with motor to the rear. Place radio section on its left side with push buttons facing away from yourself; now connect four cables J501, J502, J503 and J301 to AM/MPX/AUDIO panel. Connect A+ to J803 on lead (black) connected to on/off switch at rear of Volume/Tone control. Connect power supply ground (A-) to chassis.

TAPE PRE-AMP/VOLUME CONTROL PANEL REMOVAL

1. Follow instructions for TAPE PLAYER REMOVAL.
2. Disconnect two cables, J808 tape head cable and J804 tape deck cable, from pre-amp panel.
3. Remove two hex head screws near tape motor.
4. Lift front of pre-amp panel out to side, disengaging Volume/Tone control from its mounting flange.

NOTE: When reassembling, insert back end of panel around tape motor and rotate panel into assembly and be sure to install with volume control grounding washer on front side of mounting flange and engage Volume/Tone control bushing between two tabs on flange; install two hex head screws near motor. DO NOT install hex nuts on Volume/Tone Control until tape deck is assembled into radio housing.

*W A R R.	DESCRIPTION	SERVICE PART NO.
Z	Spring, Tension, tuning shaft	2L8-0314-1
Z	Spring, Left, tape door	2L8-0407-1
Z	Spring, Right, tape door	2L8-0407-2
Z	Strap, IC ground	2L8-0835-1
L	Sub Dial	2L7-0453-1
Z	Terminal, Disconnect (1)	2L8-0308-1
Z	Terminal, Feed thru cap. (2)	7L6-0536-1
Z	Toggle, L.H., FM mode P.B.	2L8-0404-1
Z	Toggle, R.H., AM mode P.B.	2L8-0405-1
Z	Tubing, Flex for C100 (EOHF only)	2L7-0105-3
F	Tuner Assy., Mechanical	7L6-0579-1
F	Tuner Assy., Mechanical (optional)	7L6-0852-1
Z	Wafer, Assy., locking rt. angle	2L7-0592-6
Z	Wafer, Header, 2 pin straight	2L7-0592-2
Z	Wafer, Header, 3 pin straight	2L7-0592-3
Z	Wafer, Header, 4 pin straight	2L7-0592-4
Z	Wafer, Header, 5 pin straight (2)	2L7-0594-5
Z	Wire Guide, Coil	5L4-0078-3

TAPE MECHANISM DISASSEMBLY

1. Follow instructions under TAPE PLAYER REMOVAL, TAPE PRE-AMP/VOLUME CONTROL PANEL REMOVAL and MOTOR CONTROL PANEL REMOVAL.
2. Remove four hex head screws on bottom holding the tape player to the bottom cover of the radio, then remove the bottom cover. (See Figures 3 and 4.)

CAUTION: Capstan/Flywheel Assembly is retained only by the bottom cover. Hold tape deck upside down when removing bottom cover to prevent Capstan/Flywheel Assembly from falling off.

3. Remove drive belt from flywheel and drive pulley on tape motor. Remove the flywheel.
4. Unsolder the red and green leads from track select solenoid mounting board.
5. Remove two hex head screws holding solenoid to baseplate, then carefully remove the solenoid.
6. Remove the solenoid plunger assembly from the solenoid.
7. Remove three hex head screws holding carriage housing assembly to baseplate.

NOTE: The complete carriage housing assembly must be replaced if the need to replace the tape head ever arises.

8. Unsolder four wires from S801 Tape Radio switch, remove one phillips head screw holding Actuator Switch Bracket assembly to baseplate. Unsolder as necessary for switch replacement.
9. Remove screw at top edge of motor housing, lift off motor cover, then lift out motor and cable assembly.

MOTOR FILTER PANEL REMOVAL

1. Follow instructions for TAPE PLAYER REMOVAL.
2. Disconnect two cables, J807 from tape motor and J806 from tape switch.
3. Remove two hex head screws along lower edge of panel and pull panel back away from baseplate.

SERVICE NOTES

To prevent the possibility of the jamming, do not operate the tape player upside down with a loaded cartridge. If it is necessary to operate the unit during service, use a dummy cartridge with the tape removed.

Before servicing the tape player, ascertain that the proper cartridge (8-track stereo) is being used with the unit. Also check for defective cartridge. This can be done by substituting a cartridge known to be good.

For test and alignment, an 8-track stereo alignment tape should be used. Alignment tapes can provide test functions for channel identification, track height, head azimuth, frequency response, tape speed, speaker phasing, wow and flutter, crosstalk, and stereo programs for overall test of unit performance. The alignment tapes are commercially available and are usually supplied with detailed instructions for their proper use.

Automatic or manual selection of the various tape programs is accomplished by actuating the track-select solenoid. The solenoid acts on a ratchet which positions the head cartridge assembly for the next program. Manual positioning takes place by depressing the manual track select switch (S502). Automatic positioning is accomplished by sensing the tape at the end of program. The tape, at this point, has a short length of metal foil which shorts two contacts of the tape activated track select switch (S802). This switch automatically actuates the track select solenoid and positions the head to the next program.

The operation of the program switching mechanism can be checked by using a regular cartridge or a test alignment cartridge. Adjustments are not provided for program selection. However, if the track select switch contacts are dirty they can be cleaned with a cotton swab and isopropyl alcohol, or with the eraser on the end of a pencil. Contacts for the tape-activated track select switch are located on the left side of the TAPE/RADIO switch assembly and are accessible through the tape cartridge insert slot on the front of the radio. If difficulty is encountered, refer to the Troubleshooting Procedures.

During regular operation, particles of iron oxide rub off the tape and leave a deposit on the head and capstan. The accumulation of this oxide is a major cause of improper operation and performance of tape players. The head and capstan and the surrounding area should be cleaned whenever the unit is serviced. To clean the head and capstan, use a cotton swab, moistened with a head cleaner or isopropyl alcohol, then wipe dry with a clean swab. Head cleaning tape cartridges are also commercially available, and can be used in place of the cotton swab.

The tape player head should be demagnetized after performing service on the unit and before making any head adjustments.

The external test point and adjustment locations in Figure 5 can be used during this procedure.

PRELIMINARY INFORMATION

1. Separate tape mechanism from radio. (See Disassembly Instructions.)
2. Connect +14 VDC output from power supply to A+ cable lead, and negative lead of power supply to chassis ground.
3. Connect hi-impedance VTVM and AM signal generator and use test tapes as directed in appropriate adjustment procedure.

TAPE MOTOR SPEED ADJUSTMENT

Tape motor speed adjustments have been eliminated. Motor speed is controlled by a mechanical governor.

HEAD HEIGHT ADJUSTMENT

Improper head height is evidenced by crosstalk or poor separation. This is a condition when sound from adjacent tracks is also picked up by the head in addition to the desired track. To make the head height adjustment, follow the procedure given below.

1. Play a test alignment tape with a height test track. Follow instructions provided with test tape and adjust height adjust screw for proper output. Output can be monitored with VTVM on terminal 31 of J502 for left channel or on terminal 32 of J502 for right channel.
2. If suitable test tape is not available, play an 8-track stereo cartridge and make height adjustment for best sound and a null in crosstalk.

HEAD AZIMUTH ADJUSTMENT

The need for head azimuth adjustment is evidenced by poor high frequency response and a lower output. The azimuth adjustment actually tilts the head for proper alignment of the head with the tape track. To make the head azimuth adjustment, follow the procedure given below.

1. Play a test alignment tape with an azimuth test track. Follow instructions provided with test tape. Connect VTVM to terminal 31 of J502 for left channel or to terminal 32 of J502 for right channel. Adjust azimuth adjust screw for maximum output. Use care not to short terminals on track select solenoid.
2. Because head height and head azimuth adjustments interact, repeat height and azimuth adjustments for best response. Avoid using magnetized tools near head and demagnetize head after adjusting.

TAPE PRE-AMP GAIN ADJUSTMENT

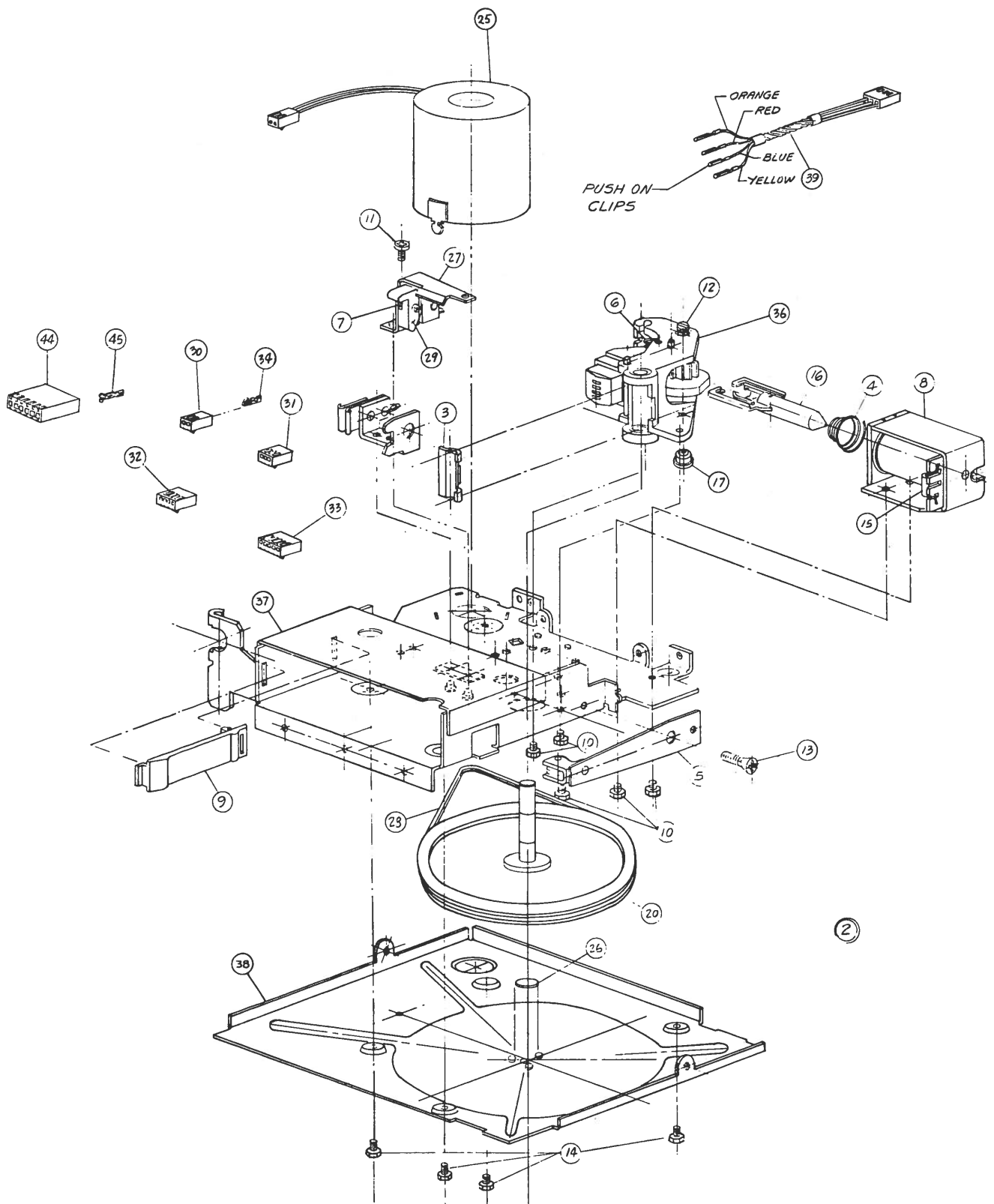
Each amplifier section of tape pre-amp IC501 contains a gain adjustment control. This gain adjustment is required to compensate for differences in the tape head pick-up on each channel. To make these gain adjustments, play a test alignment tape having a standard 400 Hz test tone. Follow instructions provided with test tape. Either of the following instructions can be followed:

1. Connect a VTVM to terminal 22 of J501 for left channel and terminal 21 of J501 for right channel. Adjust VR502 and VR503 for 60 millivolts (rm).
2. Adjust VR502 and VR503 for equal outputs of 1.2 watts at P804 with volume at mid position and tone control at maximum clockwise position after balance control has been adjusted.

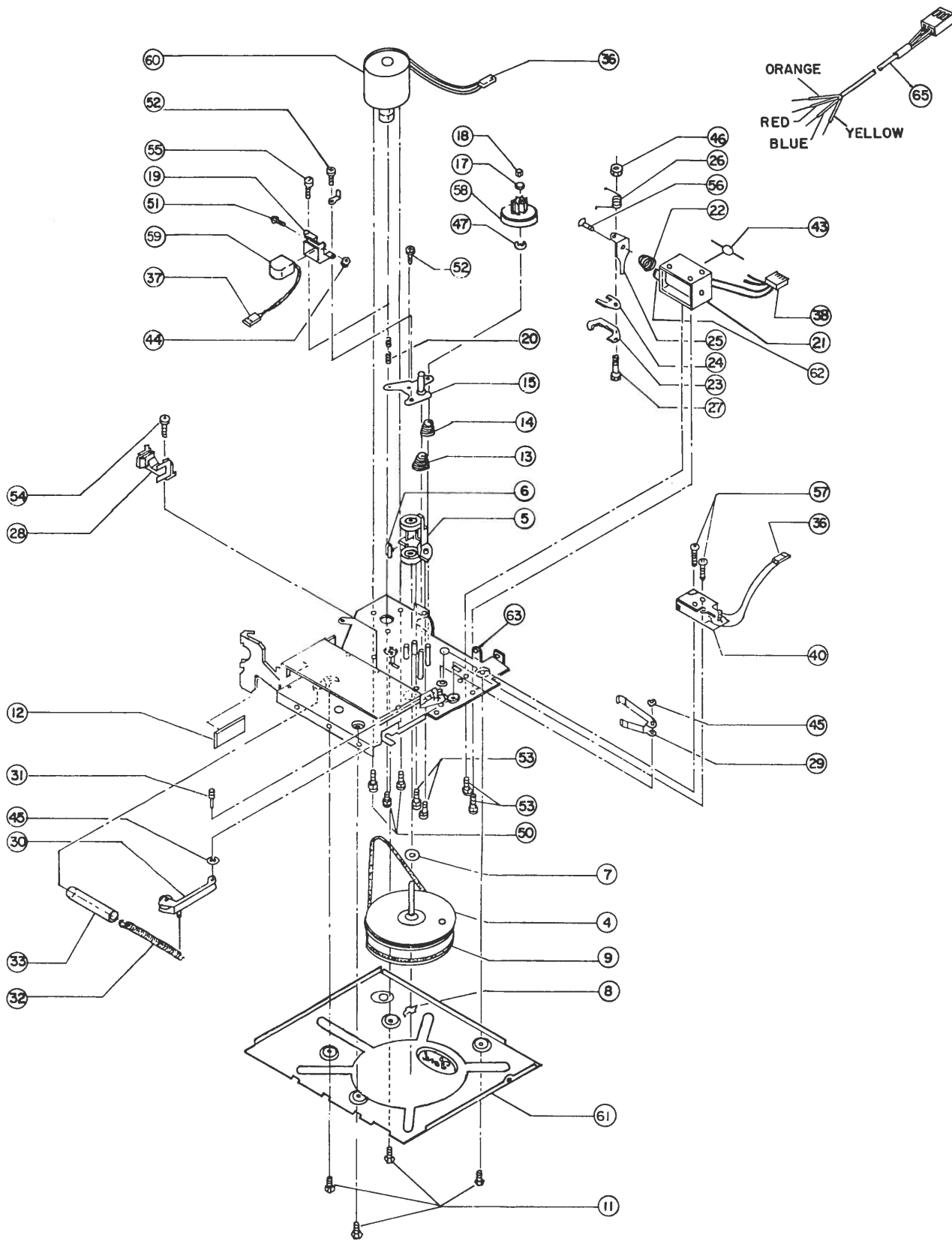
BALANCE CONTROL ADJUSTMENT

The balance control (VR504) is adjusted at the factory and normally does not require any further adjustment. The balance control is located behind the cartridge and is visible from the front of the unit. If the control is changed or misadjusted, it can be reset by following the procedure given below.

1. Remove cartridge from tape player.
2. With 1000 Hz, 30% modulated, 5 millivolt AM signal applied to J801 (antenna jack), adjust VR504 for equal output voltages on VTVM at J202 or P804.



2L8-0509- 1	45	TERMINAL
2L7-0335- 12	44	TERMINAL HOUSING 6 CIR.
7L6-0844- 19	39	CABLE ASS'Y HEAD
7L6-0844- 17	38	BOTTOM COVER
7L6-0844- 16	37	CHASSIS ASS'Y, CHASSIS & GUIDE
7L6-0495- 83	36	HOUSING ASS'Y <small>TAPE HEAD, CAM BRKT & BUSHING ASSY</small>
2L8-0753- 1	34	TERMINAL
2L7-0499- 4	32	TERMINAL HOUSING 4 CIR.
2L7-0499- 3	31	TERMINAL HOUSING 3 CIR.
2L7-0499- 2	30	TERMINAL HOUSING 2 CIR.
7L6-0495- 63	29	ACTUATOR, SWITCH
7L6-0844- 14	28	BELT, DRIVE
7L6-0495- 62	27	BRACKET ASS'Y <small>ACTUATOR BRKT SHAFT & SWITCH</small>
7L6-0495- 52	26	BUTTON, THRUST
7L6-0844- 18	25	MOTOR & CABLE ASS'Y
7L6-0844- 9	20	FLYWHEEL ASS'Y
7L6-0495- 28	17	NUT, PLASTIC, CAM ADJUST
7L6-0495- 78	16	PLUNGER ASS'Y
7L6-0495- 14	15	RECTIFIER, SILICON DIODE
7L6-0495- 73	14	SCREW, CHASSIS ASS'Y MTG.
7L6-0495- 44	13	SCREW, CARTRIDGE LOCK
7L6-0495- 50	12	SCREW, ADJUST CAM
7L6-0495- 67	11	SCREW, ACTUATOR BRKT. TO GUIDE
7L6-0495- 9	10	SCREW, HOUSING & SOLENOID MTG.
7L6-0495- 42	9	SLIDE, CARTRIDGE GUIDE
7L6-0495- 74	8	SOLENOID ASS'Y
7L6-0495- 64	7	SPRING, ACTUATOR
7L6-0495- 31	6	SPRING, CARRIAGE
7L6-0495- 77	5	SPRING, CARTRIDGE LOCK
7L6-0495- 46	4	SPRING, CONICAL SOL. PLUNGER
7L6-0495- 82	3	STRIPPER, TAPE
7L6-0817- 1	2	TAPE MECHANISM ASS'Y
PART NO.	ITEM	DESCRIPTION



7L6 - 0845 - 59	65	CABLE ASS'Y HEAD
7L6 - 0845 - 57	63	CHASSIS
7L6 - 0845 - 56	62	PLUNGER
7L6 - 0845 - 55	61	COVER, BOTTOM
7L6 - 0845 - 54	60	MOTOR & CABLE ASS'Y
7L6 - 0845 - 53	59	PLAYBACK HEAD & CABLE
7L6 - 0845 - 52	58	CAM, STEREO
7L6 - 0845 - 51	57	SCREW, BIND 3mm X 12mm
7L6 - 0845 - 50	56	SCREW, PLATE 3mm X 8mm
7L6 - 0845 - 49	55	SCREW, FLAT 3mm X 10mm
7L6 - 0845 - 48	54	SCREW, W/WASHER 3mm X 6mm
7L6 - 0845 - 47	53	SCREW, W/WASHER 3mm X 6mm
7L6 - 0845 - 46	52	SCREW, W/WASHER 3mm X 5mm
7L6 - 0845 - 45	51	SCREW, W/WASHER 2.6mm X 8mm
7L6 - 0845 - 44	50	SCREW, W/WASHER 3mm X 4mm
7L6 - 0845 - 41	47	E - RING
7L6 - 0845 - 40	46	NUT HEXAGON 3mm
7L6 - 0845 - 39	45	E-RING 3mm
7L6 - 0845 - 38	44	NUT, HEXAGON 3mm
7L6 - 0495 - 14	43	RECTIFIER, SILICON DIODE
7L6 - 0845 - 34	40	SWITCH RADIO-TAPE
2L7 - 0499 - 4	38	TERMINAL HOUSING 4 CIR
2L7 - 0499 - 3	37	TERMINAL HOUSING 3 CIR
2L7 - 0499 - 2	36	TERMINAL HOUSING 2 CIR
7L6 - 0845 - 33	33	TUBE
7L6 - 0845 - 32	32	SPRING, PRESSURE ARM
7L6 - 0845 - 31	31	SHAFT, PRESSURE ARM
7L6 - 0845 - 30	30	PRESSURE ARM ASS'Y
7L6 - 0845 - 29	29	ACTUATOR
7L6 - 0845 - 28	28	TAPE GUIDE
7L6 - 0845 - 27	27	SHAFT, SENDING CLAW
7L6 - 0845 - 26	26	SPRING, SENDING CLAW
7L6 - 0845 - 25	25	GUIDE PLATE
7L6 - 0845 - 24	24	SENDING CLAW 2
7L6 - 0845 - 23	23	SENDING CLAW 1
7L6 - 0845 - 22	22	SPRING, PLUNGER
7L6 - 0845 - 21	21	SOLENOID
7L6 - 0845 - 20	20	SPRING, AZIMUTH
7L6 - 0845 - 19	19	MOUNTING BRKT HEAD
7L6 - 0845 - 18	18	LOCKNUT
7L6 - 0845 - 17	17	POLYSLIDER
7L6 - 0845 - 15	15	HEAD MOVING PLATE ASS'Y
7L6 - 0845 - 14	14	SPRING
7L6 - 0845 - 13	13	SPRING
7L6 - 0845 - 12	12	CARTRIDGE GUIDE
7L6 - 0845 - 11	11	SCREW CHASSIS ASS'Y MTG
7L6 - 0845 - 9	9	RUBBER BELT
7L6 - 0845 - 8	8	THRUST SHEET
7L6 - 0845 - 7	7	POLYSLIDER
7L6 - 0845 - 6	6	CAPSTAN SHOE
7L6 - 0845 - 5	5	CAPSTAN BLOCK
7L6 - 0845 - 4	4	FLYWHEEL ASS'Y
7L6 - 0818 - 1	2	TAPE MECHANISM ASS'Y
PART NO.	ITEM	DESCRIPTION